

EMERGENCY
COMMUNICATIONS
PUBLIC SERVICE
EXPERIMENTATION
INFORMATION
EDUCATION

P.O. Box 30529

Cleveland, Ohio 44130

Emergency Communications
for:

COUNTY OF
CUYAHOGA

Div. of
Emergency Assistance & Planning



Not for profit Ohio corporation tax-exempt under IRS Section 501(c)(3)

CODE PRACTICE

SUNDAYS 8 PM

145.29

6,9,13,16,20 & 24

W.P.M.

North Coast Communicator

INFORMAL NET

SUNDAYS 9 PM

145.29

FEBRUARY/MARCH - 1987

Board Meeting Notice

6:00 PM Thursday March 5, 1987 at Denny's Restaurant, 25912 Lorain Road (on the North Side of Lorain between Great Northern Blvd. and Brookpark Road).

General Meeting Notice

7:30 PM Thursday March 5, 1987 at the North Olmsted branch of the Cuyahoga County Public Library, 27425 Butternut Ridge Road (on the South side next to North Olmsted Middle School between Dover Center and Lorain Roads).

Program:

1987 SKYWARN Program presented by Marvin Miller of the National Weather Service, Cleveland facility. The program will include the film "Before the Warning".

WELCOME NEW NORTH COAST A.R.C. MEMBERS

Help give a warm welcome to the following new members since the January 1987 issue of the North Coast Communicator:

KB8AUH Cliff Crabs, KB8BBT Mary Lou Sarama (XYL of KB8A Dan), KB8BDY Nick Szabo (12 year old son of Fred WB8UDA), W8CWT Ken Good, W8KBV Joe Young, WB8UWK Steve Butler, WA8VDG Bill Berndsen, KB8BEB Ron Deatherage and Pennie Wells (9 year old daughter of Rick K8SCI and Pauline KA8FOE).

SCHOOL TORNADO DRILL - MARCH 25, 1987 at 10:10 AM

Members of the North Coast Amateur Radio Club will be assisting the Cuyahoga County Division of Emergency and Planning (E.A.P.) during the state-wide tornado drill exercise. Volunteers are needed to provide communications from various schools. If you are available to assist, please contact Rick K8SCI or Pauline KA8FOE at 779-8999 A.S.A.P.

CONGRATULATIONS TO NCARC MEMBERS WHO RECENTLY UPGRADED

Joe W8KBV from Technician to General, Fred WA8TMK from Advanced to Extra and Ron KB8BEB from Novice to Technician.

NOVICE ENHANCEMENT APPROVED - 28, 220 & 1270 MHz Voice starts 0001 UTC March 21.

More details inside this issue of the North Coast Communicator (HR ARRL Bulletin # 13 pg 32). Hams might lose 2 MHz of 220-225 MHz band (HR ARRL Bulletin # 16 pg 34).

AMATEUR RADIO CALL SIGNS AS OF FEBRUARY 1, 1987 - EIGHTH DISTRICT

Groups: A-Extra: NV8H B-Advanced: KE8JL C-General/Tech: N8HZM D-Novices: KB8BDH

Minutes of the Trustees Meeting - January 8, 1987 de Dave KA8ZRG

The meeting was called to order at 1830 hours. In attendance were Tim (NR8T), Steve (NO8M), Steve (N8GNJ), Jim (N8GJR), Rick (K8SCI), Pauline (KA8FOE), Dan (N8ETQ), Steve (WD8INO) and Ray (WD8MHL). Visiting were Dave (N8ETY), Larry (KA8WRZ), Glenn (WD8OMW), Mike (K9SSL) and Tom (N8ETP).

-- Election Ballots -- Steve (NO8M) suggested that the ballots from both the 1985 and 86 be destroyed. Tim (NR8T) agreed.

-- Finance Committee -- The committee headed by Mike (K9SSL) will meet and make a current budget report. Jim (N8GJR) will also do a audit of the finance books and report back at the next trustees meeting.

-- Sunshine -- The trustees will reopen discussion about sending planters to members who are ill.

-- The Repeater -- A motion was made by Ray (WD8MHL) to look into a different repeater site, and also the financial aspect of moving the repeater. The motion was seconded by Steve (WD8INO).

-- Trustees Objectives -- A list of objectives will be made of what the new trustees want to accomplish for the new year.

-- 75 Meter Net -- Tim (NR8T) will contact Dave (KB8TT) in regards to the net continuing.

The meeting was closed at 2120.

Minutes of the Trustees Meeting - February 5, 1987 de Dave KA8ZRG

The meeting was called to order at 18:10. In attendance were Steve (NO8M), Steve (N8GNJ), Jim (N8GJR), Tim (NR8T), Rick (K8SCI), Ray (WD8MHL), Pauline (KA8FOE), Dick (WD8ISB), Tom (N8FQQ) and Bob (K8TTZ). Visiting were Larry (KA8WRZ), Dave (N8ETY), Jeff (KR0J) and Eileen (KA8YEA).

-- The minutes from the December Trustees meeting were accepted on a motion from Steve (NO8M).

-- Jim (N8GJR) gave his review of the finance books with an audit of the books to be completed by the March Trustees meeting. Recommendations made on the budget were accepted on a motion from Steve (NO8M).

-- Bob (K8TTZ) made a motion to combine the mailing costs and printing costs into one for the budget. Motion was passed.

-- A motion by Steve (NO8M) was brought up on giving every Novice class a free membership. The motion was tabled for further discussion till the March Trustees meeting.

-- Steve (NO8M) made a motion for the Technical Committee to meet within the next 30 days and report back. Motion was accepted.

-- Rick (K8SCI) made a motion to hold a special open discussion meeting of the trustees to plan this years objectives.

The meeting adjourned at 19:20 on a motion from Steve (NO8M).

Minutes of the General Meeting - February 5, 1987 de Dave KA8ZRG

The meeting came to order at 19:45.

-- Introductions were made.

-- Bob (W8IO) made a motion to approve Decembers General Meeting minutes. The motion was approved.

-- The Finance Committee reported by Jim (N8GJR) on the state of the budget. The money will be frozen till an audit can be done by the next meeting.

-- Bob (W8IO) reported that 16 individuals enrolled in the educational classes (Elmers are needed to step forward).

-- Members are needed for the Technical Committee.

-- A generator was reported needed for Field Day.

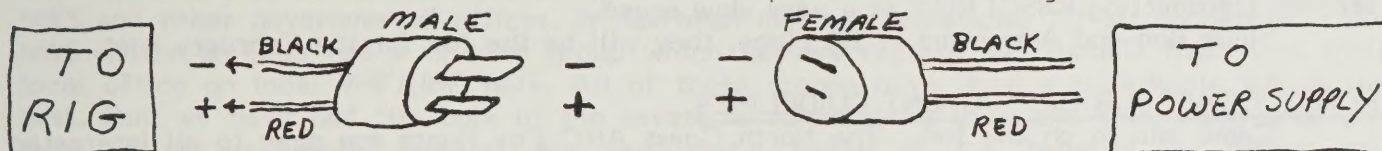
-- Pauline (KA8FOE) won the 50/50 raffle and Several door prizes (donated by Tom KB8AOL) were given away.

-- On a motion from Dave (N8ETY) the meeting adjourned at 21:45.

LETS MAKE A DECISION ON A STANDARD POWER CONNECTOR de Steve Stroh N8GNJ

In the September/October 1985 issue of the Communicator, Steve Wolf WB8IKO (now NO8M) suggested the use of a set of common power connectors so that any member's power supply could be used by any other member's rig. Even if you use another standard type connector, if you were to work up an adapter cable with these connectors, you would then be commonized with the rest of the club. With the large amount of public service work that the club does, having this system in place could really come in handy. In any case, I think that the article bears repeating once a year or so. The plug that was used is a 2 prong type with one prong wider than the other to provide polarization. The plug is Radio Shack stock number 274-201 on page 121 of the 1987 general catalog. The socket is stock number 274-202.

To clarify the polarization of the connections, the Minus (-) should be attached to the wide side and the Plus (+) attached to the narrower pin (see the drawing below).



Computer Net de Steve N8GNJ

Now that the fall and winter seasons are once again upon us, the Computer and Information net has started up again. It is held on the 146.79 (HERO) repeater on Monday evenings at 9:00 P.M. The C & I net is open to all interested hams who have questions or comments about computers. No particular make or model of computer is emphasized, and the group is fairly knowledgeable, so give it a try. Joel Gordon N8APU is Net Control

FOR SALE

TH-21AT Two Meter Hand-Held (like new)...\$165.00. Call Steve NO8M at 777-1177.

NEED A 9 PIN CONNECTOR FOR YOUR 290H? de Steve N8GNJ

For those of you who have an ICOM IC-290H 2 meter all mode transceiver (and its companion IC-490H 440 all mode transceiver) who need the nine pin connector for the general purpose socket on the back of the radio, I have located a source. The connector is a Vanco Model AP9 Nine pin auto stereo plug. Vanco, Inc. is located in Lake Bluff, Illinois (zip is 60044). El-A-Co Electronics (87 Lake Avenue, Elyria, Ohio 44035, 216/322-2526) carries this connector for \$1.50 each. It isn't very popular, so they only carry a few of them. If they happen to be out of stock of them, ask them to order some for you. They will be happy to do so, and can ship them UPS COD to you when they come in. These connectors are very handy for interfacing devices such as Packet TNC's, RTTY TU's, etc. because you can bring the audio, and PTT signals right out the back of the radio without removing the microphone.

Motorola Mic Wanted

I would like to locate one of the newer style Motorola base station microphones. The one that I'm looking for is not the "mobile mic. on a stalk" type, but the smaller type with a sloping profile. If anyone knows where I can find one in reasonable condition at a reasonable price, please let me know about it. Thanks, Steve Stroh N8GNJ. Call 365-2793 (Elyria).

New Q-Signs? de Chris KA8SLX

We've all been busy but, it is time to report on the craziness of 5.29. The first new Q-sign is: QOM - this means that I'm trying to talk on the repeater and my husband is talking to me. The next several are from Paul N8HOB.... QBP - this is a bad pun.... QBZ - this is getting bazaar.... QFA - usually used when Tom WL7AEC is on the air - meaning this person is free associating or has changed the subject. Q8O - comes from Tom NQ8O who says this means "turn off your radio".

Field Day 1987 is coming (June 27 & 28)

Help out this years NCARC effort by contacting Paul N8HOB to volunteer - 884-8398.

FOX HUNT REPORT FOR JANUARY 10, 1987

The Fox was Rick K8SCI. He hid in North Olmsted at the southern end of Wedgewood Road (far west end of North Olmsted) underneath several high-tension lines using a Kenwood TR-7400 running 5 watts into a 5/8 roof mounted vertical.

1st place was Bob K8DTS and his daughter Amy who found Rick in 12 mins and 33 secs into the hunt using a DoplerScant. 2nd place was Mike K9SSL and Mike W8ARS who found Rick in 16 mins and 5 secs using a horizontal Yagi. 3rd place was Dave N8ETY and Tom KV8M in 21 mins 20 secs using a DoplerScant. 4th place was Larry KA8WRZ and Michelle (XYL) in 94 mins and 45 secs. 5th place was Larry N8HWK and Pete KE8CT at 95 mins and 14 secs.

Rick K8SCI used a Hamtronics CW identifier which controlled a COR circuit driving a relay which automatically keyed the Kenwood TR-7400 for 17 second transmissions every 34 seconds transmitting K8SCI FOX at a very slow speed.

Since Bob and Amy came in 1st place, they will be the fox for the February hunt.

NORTH COAST A.R.C. FOX HUNT GUIDELINES

Come join in on the fun. The North Coast ARC Fox Hunts are open to all interested individuals. Bring your own DF equipment, or ride with someone else to help read maps, turn antennas, etc. The hunts are held the 2nd Saturday evening of each month.

The hunters should be completely set up and ready to start at 7:00 PM (please allow the time required to set up prior to the 7:00 PM starting time). All hunters meet at the rear of the North Olmsted Branch of the Cuyahoga County Public Library (Butternut Ridge Road between Dover Center and Porter Roads). Everyone meets for pizza and conversation at Frankies Pizza on Great Northern Blvd. afterwards.

The Fox Hunt Rules/Guidelines are simple:

1. Two meter simplex (frequency announced to hunters prior to the hunt).
2. Transmit/Receive duration times are equal. The duration must be at a minimum of 15 and no more than 60 seconds in length, but remain at the same time length for the duration of the hunt.
3. Fox cannot change their location and must be stationary.
4. Power and/or antennas can be changed (or rotated).
5. Fox Hunt Area must fall within the following: Rt 83 to the West, Rt 82 to the South, Rt 237 to the East and the Lake Erie Shore Line to the North.
6. The Fox must be on Public property with normal Public access (such as: streets, parks, schools, government locations, etc) but not inside of any building. Note that a parking lot at a shopping center is not public property, but privately owned property with public access and should never be used (this is also for the safety of the hunters and shoppers).
7. The Fox must be strong enough to be heard by the hunters at the starting point at the beginning of the hunt.
8. The Fox must identify obeying FCC regulations (minimum of once each ten minute period and at the end) using either voice or tone modulated CW.
9. The Fox Hunt time limit is 2 hours total duration (from the time that the Fox is informed by the hunters that everyone is ready and to go ahead with the hunt).
10. No hunter shall drop out without making every possible attempt to inform the fox or other hunters that they are not continuing with the hunt.

NORTH COAST A.R.C. ARRL VE REPORT FOR FEB 7, 1987

11 individuals took 13 elements passing 6 of those elements at the North Coast ARC Volunteer Examination held at the Community Cabin at North Olmsted Park. 4 of these individuals successfully upgraded their class of operators license (a Novice to Technician, a Technician to General and 2 Advances to Extra).

Many thanks to those NCARC VEs who helped during this session. NCARC VEs were Dan KB8A (ARRL VE Liason), Pete W1BKZ, Don KD8JQ and Tim NR8T. Assisting as a helper was Rick K8SCI.

The next NCARC VE session will be Saturday 1:00 PM April 11, 1987 (same location).

THINK SPRING; THINK SEVERE WEATHER! de Jerry Murphy, K8YUW

It might seem slightly ludicrous to think about the severe weather season now just a matter of weeks away, what with the cold days and nights, snow and ice, and other rudiments of winter still firmly in control in this area. But the time is nigh for all of us in the public service end of amateur radio to take a fresh look at what causes these natural phenomena, and what part we will play in the coming season(s).

In past years, some National Weather Service Offices in the country had the responsibility for providing warnings of severe storms to a number of counties, but only some of these have chosen to get involved with SKYWARN spotters, and only a few of these have chosen to use amateur radio operators as those spotters. The game rules are getting ready for major changes.

We in Ohio are blessed with being in a state that fully supports SKYWARN, both in the NWS and other governmental offices. It has been mutually beneficial for all concerned. Each NWS office in Ohio has a club or group which gathers reports and funnels them into their local office on local VHF/UHF nets. All of these groups have done a remarkable job in the past. But we have had the bulk of the severe weather along the Lake Erie shore line, and hams in our lakeshore counties are particularly aware of the benefits for having and supporting such a public service. Our brethren farther inland will soon find out that they have been missing the boat many times when she sailed.

The new rules to be put into place in the next couple of years will catch them unprepared to play along if they don't start their planning right now. The local nets we have supported in the past are soon to be replaced by much larger area nets, with considerably tighter discipline, and some different methods of operation. If we are to succeed in supporting SKYWARN in the future, we must start to make our changes now. Then, when the NWS has begun to institute the nationwide changes to their systems, we will have ours already in place and functional. It won't be cheap, and it certainly will not be easy. But it must be done if we are to survive and flourish as a hobby and as a service.

This column will introduce you to some of the terminology, and a very little bit of the meteorology, we amateurs will be involved in during the coming few years. By the time it is all in place, you all should be qualified to participate in the SKYWARN Net of the near future. I suggest you clip these articles and save them in a three-ring binder or folder. None of us will ever qualify as weather forecasters from these brief articles, but we should become better spotters.

First, the good news: the computer system of the near past, called AFOS, (Automated Field Operations System), will be retired and removed from all NWS offices. The replacement system is to be called AWIPS-90, (Advanced Weather Interactive Processing System, 1990), a very large and sophisticated computerized system of monitoring automated weather sensors and instruments, nationwide. The Weather Service Radars (WSR's) now high up on towers at hundreds of locations in the country will be removed and replaced. They are old technology, (would you believe they still use TUBES?), and parts are hard to come by. These will be replaced by the NEXt generation of RADar (NEXRAD), and will operate on the Doppler principle. That was the good news.

The bad news is the cost. To fully fund these necessary changes, a number of cost-savings measures will have to be put into affect. The largest savings will be realized by releasing personnel from the NWS. The good met-techs who presently read barometers, note the wind speeds and directions, tell us whether it is cloudy or sunny, and sling their psychrometers, will instead be slinging hash at the local beanery. AWIPS-90 instruments will have taken their place. This will lead to closing offices. These offices will be taken over by robots and automats anyhow, and AWIPS-90 will be minding the store. The offices to be left on line in Ohio as I write this will be the office serving the greater Cincinnati area, and the one in Cleveland. Cleveland will pick up the added role of looking after forecasting for all six of the Great Lakes (you forgot Lake St. Clair, didn't you!); Cincinnati will also look after the forecasting of flooding along the Ohio River and her tributaries. Both Cleveland and Cincinnati will have NEXRAD, mounted on the ground, and with an effective range of about 230 km at 10 km altitude.

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THINK SPRING; THINK SEVERE WEATHER! (Continued)

Resolution at that range will be on the order of 1 km. Storm cells smaller than 1 km at 10 km altitude, or lower in the atmosphere at that range, will not be readily identified. If you assume that is a straight line relationship, target cells at half that range can be half that height and only 1/2 km in size and still be identified. It also follows that target cells smaller than that, at less than that altitude, will likewise go unidentified. But those cells that ARE identified will be closely watched and evaluated by some very sophisticated equipment, and some very highly skilled forecasters. These will likely be the big storms of the type that wreaked such havoc in Newton Falls not so long ago. The smaller cells might still breed the common, garden variety small twister, and that is where the ham community comes in. We simply MUST improve our skills and techniques if we are to spot these storms, and report them in a timely manner.

Report them to where, I hear you asking. Why, to the NWS office in the state that has warning responsibility for the area. If you have been reporting to Cleveland or Cincinnati, there will be little change. But if you have been reporting to Youngstown, Dayton, Mansfield, Columbus, Toledo or Akron/Canton, you are in for a surprise. Instead, you will be then reporting to the nearest Weather Forecast Office. Some of our counties will be reporting to Detroit, or Pittsburgh, or who-knows-where. Those counties that are used to reporting to Cleveland will be joined by dozens of others. The local net we have been using to report in to the Cleveland office will have to change to permit those outlying counties to relay in their information, answer questions that might arise, and step aside to let others do the same thing. To cut down on the number of relays, and the loss of information attendant to relays, we must develop and maintain large-area linking of repeaters, and certain paths over which packets can travel. Inter-club jealousies must be destroyed and buried when and if they interfere with an effective SKYWARN net. HF operators will finally get the respect and credit they so richly deserve IF they can be successfully integrated into this system. And IF we can get a state-wide net going. Both are very big IFs. The days of reporting in to the net with light rain reports are over.

If you would learn what we call net discipline, start now by regularly checking in to any of the several NTS nets, or join a MARS group. Learn how to handle traffic. Learn what it means to pay attention to a net control. Don't show up on a SKYWARN net without learning the skill of really working on a controlled net. You will not be recognized for long, nor will you be accepted by your peers. This skill is not something you learn from reading a book, nor is there any easy test for which you can memorize answers.

But we also must have participation from more hams, and from more places, if we are to do the job in the future as we have in the past. We'll also have to start earlier in a severe weather event and stay longer. Remember, we will have a much larger area of responsibility. We will be picking up the storms from much further away, and staying with them much longer than we have in the past. I hasten to add that this part of it will not happen for a couple more years, but the time to plan for it is now. It is time to budget for the newer and more extensive (and expensive) equipment we will need to have, and for the advanced methods of communications we will need to develop. Packet, ATV (radar), and other things will have to become commonplace in our shacks. We will need to improve our antenna situations and our mobile capabilities. Our repeaters will have to work out the linking protocols. Let us not wait for 1990 to start work on these critical parts of the system.

Effective immediately, we will only accept reports of what has become known as the "big five": hail, damaging winds, heavy rain, certain clouds, and severe lightning. From time to time, the forecasters will ask us to find out just what is going on at a particular place. At THOSE times, we will want to know just what is going on, big five or not. Pay attention to what the net controls are saying, and answer their questions. There will be periods when nothing is being said on net. That's okay. It's only when nobody is taking up net time with "light rain" reports that somebody with a "big five" report can get in edgewise. In the too-near future, that somebody might be talking to us from several counties away, through a series of links.

Welcome to the future; more to follow!

PACKET RADIO AT THE WRECK OF THE COLONIAL

[The following reports from Bob Bruninga, WB4APR, and Tom Clark, W3IWI, show how the packet network was used as part of the Amateur Radio response to an emergency. First, Bob's report.]

At approximately 1400 local on January 4, I heard on the local AMRAD repeater that there was a train wreck in Baltimore and that an emergency net was being activated on the 146.67-MHz Baltimore repeater.

Since initial high priority traffic was being passed, it was several minutes before it was apparent that this was a major disaster and that casualties were involved. I began packing up my equipment when I heard a call for portable packet equipment go out over the net. At about 1430 I checked in with WA3TOY (the Anne Arundel County EC) and at about 1500 I proceeded to the Red Cross in Glen Burnie, still 30 miles or more from the site. At about 1630 I was directed by the operator on 146.67 to proceed to the disaster site and to report to the command center at Engine Company 54 within a mile of the wreck site.

The entire area within 5 miles or more from the accident was blocked off because of the enormous number of emergency and support vehicles. The accident was located on a peninsula with only one two-lane highway for access. At the first roadblock I was able to convince the officer that I had a legitimate reason to enter the site by showing him a combination of a white hardhat, an AMSAT name tag, a military ID and the pile of equipment in the front seat. He said I could go through, but that I would have to leave my car and he would flag the next emergency vehicle for a ride. This was my first lesson: PACK LIGHT! I abandoned the car, the emergency generator, the food that my wife had packed, the tools, cables, antennas, extension cords, lights and foul-weather gear, and grabbed my two portable packet briefcases and a small box of accessories. I was tossed aboard a hook-and-ladder truck for a cold three-mile ride in to the command post.

Engine Company 54 could best be described as a mob scene with every imaginable emergency vehicle and personnel mingled with a growing number of stranded passengers. I reported to the Amateur Radio table and found that N3FFB was just completing setting up his packet station and was establishing a link on 145.01 with the WB3FFV BBS only a mile or so away. After an anxious several minutes, word was received that the passengers were being ferried two miles down the road to the Bowleys Quarters VFD and that a packet station would be needed there. I jumped aboard the first bus of 12 passengers and arrived at Bowleys Quarters at about 1800. The only amateur operator there was KA3ENQ operating an HT. We set up a packet table near the back door and strung my fishpole antenna up the back of the building. Since the command center was using 145.01, I established a link for health-and-welfare traffic on 145.05 through the W3GXT-5 digipeater.

Having no idea of what other packet activity was taking place, and noticing that the command center packet station had no printer or hardcopy capability, I decided the best thing was to start entering the lists of names from our shelter into a computer somewhere. I knew of at least three BBSs that could be accessed from the location, but I was not sure of how others planned to use them. Since I had both a Model 100 based portable packet system using a VADCG TNC and an EP-44 portable typewriter system with a TAPR TNC, I had the choice of off-line message preparation on the Model 100 or manual operation of the EP-44 but with hard copy. I chose the hard-copy option with the more familiar TAPR TNC (in case relief operators showed up) and established a connection with my mail-drop BBS in Annapolis. My plan was not to tie up any of the major BBSs with my keyboard entry, but to let my mail-drop program 40 miles away forward the traffic at machine speed to the W3IWI BBS. Tom could manage the "big picture" from there. From his BBS, other stations could download the passenger lists for use at the multiple locations concerned. Throughout the night, I grouped the passenger lists into messages of about 10 people each. I sent these to W3IWI if it was available, or to my home BBS. If channel activity on .05 was heavy, I QSYd to 145.01 and posted a few of the messages on the nearby WB3FFV BBS.

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PACKET RADIO AT THE WRECK OF THE COLONIAL (Continued)

During the excitement, everything was so hectic in our shelter that I never had time to find out what else was going on. I assumed that other packet activity was involved from the other shelters and that the command post was busy with traffic on 145.01. I remained focused only on my effort to get our lists posted somewhere as soon as possible. The advantage of my C 64 BBS in Annapolis for interim message posting was that it would forward to W3IWI immediately when I logged off, or if W3IWI was busy, I could remotely force a forward at any future time. Tom connected and encouraged me to upload directly to his BBS whenever it was free, because he could move the messages on floppy disk between his two BBSs and other computers for processing. With the availability of the three BBSs, I never had to wait long. Whenever a list came to me, I was usually able to begin entry almost immediately. Reviewing the 60 feet of printouts from my terminal after the exercise, almost every message was entered in less than 10 minutes. The 14 messages contained the full name and address of every passenger in our shelter and the phone number of the next of kin. A total of 165 passengers in our shelter were accounted for in our outgoing traffic. The other two shelters processed the remaining passengers. Later we learned that the train was carrying approximately 610 passengers; there were 15 fatalities and 170 injured.

The true meaning and value of health-and-welfare message handling became clear. Although phones in the area were not disrupted, they were completely swamped with more urgent traffic. While the accident occurred at 1300, at 2200 none of the passengers in our shelter had had a chance to call home. With 165 passengers and many tens of Red Cross and other support personnel in our shelter at the fire department, the three available phone lines had to remain open for higher priority traffic. Amateur Radio was the only way of getting the names out quickly. Using a packet channel instead of a voice frequency not only increased the speed of transmission and reduced the introduction of errors in the data, but also kept the voice channels and repeaters free for higher priority traffic.

Since I was allowed only to enter the disaster area with what I could carry in both arms, it was fortunate that my portable packet station was almost completely self contained in a briefcase. The combination of a hand-held transceiver with a small coax antenna shoved up inside an 18-foot collapsible fiberglass fishing pole and a 50-foot piece of miniature 3-conductor audio cable allowed the packet terminal to be operated indoors while the antenna and radio were outdoors. The audio cable is much more compact than a comparable length of coaxial cable, and keeping the radio away from the terminal eliminated RFI problems. Access to the hand-held which was outside on the roof was not a problem, because I stayed on 145.05 most of the time. Because of the bursty nature of packet, the BP2 battery pack with unknown initial charge lasted the entire 5 hours of continuous use.

Later I learned that the addresses collected by the Red Cross and provided on my lists were not absolutely critical for the notification of next of kin. My message throughput probably would have doubled had I omitted the full address. Tom concluded that his job of passing the traffic to other nets would have been facilitated had I placed the phone number first so that he could sort on the area code and regroup the traffic by area. (By Bob Bruninga, WB4APR)

[While Bob was getting his portable packet station in operation, W3IWI was busy at his home station:]

Just like WB4APR, I first heard of the wreck while sitting in the shack with a 2-m radio in the background tuned to the 145.41 repeater in Carroll County MD Sunday about 1430 EST. A QST came on frequency requesting people to stand by for an emergency announcement concerning a major disaster in Baltimore. I asked my wife to check the TV to see if there was any news, and by about 1500 the situation became clear. Like Bob, I also QSY'd to the primary Baltimore 146.67 repeater and heard the call for packet coordination. Howard Leadmon WB3FFV runs a wide-area coverage BBS on 145.01 only 2 miles from the crash site. Howard and I coordinated communications channels for message forwarding between us on 145.01; he was to serve local packet communications needs at the crash site. I committed my 145.05/221.01 BBS to emergency service and proceeded to notify non-involved users to keep both 145.01 and 145.05 clear until further notice. I then sat and waited for the onslaught, not knowing what would develop. I fired up the 75M rig on the 3920 kHz Maryland Emergency Phone Net (MEPN) and offered my services. There again everyone was waiting.

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PACKET RADIO AT THE WRECK OF THE COLONIAL (Continued)

Finally about 1845 WB4APR started sending the lists of survivors described in his report. These lists consisted of the survivor's name and address, and a phone number for the next of kin. Bob also provided info on what time the survivors passed thru his location and where the bus was taking them. There had been no instructions from anyone as to what should be done with the information, so I made some snap decisions. First I noted that nearly all the survivors' families were located between Maryland and Massachusetts, with a heavy concentration in the New York area. On 3920 we put out calls for people to handle messages to the area codes on Bob's lists.

I converted Bob's lists into abbreviated "instant" (almost) ARRL-format radiograms (lacking only the precedence and check information). The messages were addressed to a phone number and told the story that the party had been reported as OK and was enroute to the xxxx Hotel by bus. By 2300 on 3920 kHz (with some QSYing to 2-m FM channels for efficiency) the MEPN had handled about 50 such messages. An additional 28 were sent as NTS traffic by packet with a total of about 80 messages having been cleared by 1 AM.

I felt like a one-armed paper hanger! Three computers were involved (145.05 BBS for messages incoming from WB4APR, 145.01 for relaying packet info to/from EASTNET [the East Coast packet network], plus an additional PC-clone to do chores like viewing Bob's lists while making the "instant" radiograms, printing the radiograms, generating the traffic for export on packet on EASTNET, etc). The 145.01 and 145.05 channels share one antenna and are linked together by radio on 220. 2-m FM was in use for local coordination and message handling. 75 m was active for MEPN with the kilowatt causing occasional crashes of the 145.01 system. And the keeping track of which messages had been sent and which hadn't was horrendous. I finally crashed about 2 AM feeling rather exhausted. The next morning I checked the BBS and found two more APR lists that had been originated around 10 PM and sat on the WB3FFV BBS until they were forwarded about 3:30 AM.

During all this activity I managed to deliver a couple of the messages personally by phone. To hear the sound of relief in the voices of the recipients made the evenings work worth it! We also received back service messages from amateurs delivering about 20-30 of the pieces of traffic so we know the traffic made it to the other end.

After any such effort, it is wise to review the lessons learned -- the following are personal comments. Any negativism is an attempt at constructive criticism.

I should have realized the volume of traffic that would be generated earlier and had others pull some of WB4APR's messages off the 145.05 BBS and handle them through other channels. It is very easy to get bogged down in such an operation and fall behind. I should have asked for additional help earlier.

Coordination and information flow to the "worker bees" left a lot to be desired. Bob reported that people just started handing him the lists with no instructions on who/where/why they were generated. He took the initiative to put the problem off onto me. I had a similar problem -- what do I do with the lists? When a disaster occurs people end up inventing solutions which may be sub-optimum! At least one Monday-morning quarterback informs me that the lists were not supposed to be used for the notification of the next of kin of the survivors and that we did a "NO-NO." If this was the case, then why were the lists collected?

The messages we were handling were useful to the recipients for only a very short time. Their purpose was to relieve anxiety and worry on the part of the families until the victims were able to get somewhere to make their personal calls home. I made the very arbitrary decision that messages which had not left here by 2 AM were no longer timely. As a result the last two lists (about 25 names) which arrived here at 3:30 AM (while I was asleep) were never converted into messages to the next of kin. Again this was a judgment call for which I can be easily faulted.

When handling health-and-welfare messages, it is important to adopt a fixed format early on. Had WB4APR sent me the lists with some sort of machine-readable separator character between the first name, last name, address, city, state and phone number fields, then the computer here could have been quickly set up to sort the material and make the bookkeeping a lot easier! I suspect in any future disaster we will see computers being used even more for coping with the large volumes of data.

(Continued)

PACKET RADIO AT THE WRECK OF THE COLONIAL (Continued)

Packet once again proved its ability to send fairly large volumes of tabular data during times of crisis. If the communications need to be rapid, use voice! If they need to be accurate, packet can do a great job. (By Tom Clark, W3IWI)

Gateway: The ARRL Packet-Radio Newsletter Vol 3, No 11, Jan 23, 1987 via HAMNET BBS

CALL FOR PAPERS FOR ARRL PACKET-RADIO CONFERENCE

The Sixth ARRL Amateur Radio Computer Networking Conference will be hosted by the TRW Amateur Radio Club, Redondo Beach, California, on Saturday, August 29, 1987. The Conference will feature technical papers presented by internationally known packet-radio pioneers.

Papers are invited on Amateur Radio digital communication, in particular packet radio in the following subject areas: transmission technologies, networking, network expansion and development, applications, operations, message handling, international matters, spectrum management, and integration of data, voice and images.

Prospective authors are requested to contact Mrs Maty Weinberg, ARRL HQ, 225 Main Street, Newington, CT 06111, telephone 203-666-1541 for an author's kit. Camera-ready originals are due at ARRL HQ no later than July 27, 1987.

USING 9600 BIT/S ON THE TNC 2 SERIAL PORT

Phil Karn, KA9Q, pointed out to me that he was having trouble communicating with a TNC 2 over the RS-232-C port at 9600 bit/s because of the low slew rate of the op amp (LM324) drivers.

This problem was identified early in the TNC 2 debugging stage and was found to cause problems when the supply voltage was on the high side of 12 volts (say 13.6 volts and above). The solution is to replace the LM324 with the more expensive LM349 op-amp. This op amp has a much higher slew rate and should work fine with supply voltages up to 16 volts (the rest of the TNC2 might not like that voltage however). The LM349 is not stable for closed loop gains of 5 or less so a 4.7-kilohm resistor must be added from U3, pin 10 to ground. A casual glance at the schematic might lead one to conclude that this resistor does nothing useful. But, in fact, it increases the closed loop gain to 10 and that should tame instabilities in the op-amp used for the voltage regulator. The 4.7-kilohm resistor is needed only if U3 is replaced with a LM349. (From Paul Newland, AD7I)

ITALIAN MEAT LOAF de Chris KA8SLX

Ingredients

- 1 Pound of Ground Beef
- 1 Cup of soft bread crumbs
- 1/2 Cup grated Romano or Parmesan
- 2 Tablespoons of instant minced onion
- 1/4 Cup fresh chopped parsley
- 1/2 teaspoon of garlic

- 1 1/4 teaspoon basil leaves
- 1/2 teaspoon black pepper
- 3 large eggs
- 2 teaspoons of olive oil
- 2 Tablespoons dry bread crumbs
- 1/2 Pound of Ricotta cheese

Combine first six ingredients. Then add 1 teaspoon of basil, 1/4 teaspoon pepper and two of the eggs. Mix well.

Brush the bottom and sides of a loaf pan with oil. Sprinkle with dry bread crumbs. Turn half of the meat mixture into pan and spread evenly.

Mix remaining basil, pepper and egg with the ricotta cheese. Spread over the meat. Top with remaining meat. Bake at 350 degrees for 1 hour.

(From my sisters Home Ec class)

WEATHER TRAINING BEGINS de Jerry Murphy, K8YUW

You may have noticed over the years that the severe weather season begins hard on the heels of winter, and lasts into the summer months. Sometimes we have severe weather until nearly the fall of the year. Have you ever wondered why this happens? This column will attempt to answer some of your questions. I am certainly no trained and brilliant meteorologist, but I have had a very little bit of training on the subject, and will give this my best shot.

As the earth spins, it also wobbles on it's axis, bringing us into the influence of the sun in the warmer parts of the year, and away from it during the colder times. While we are experiencing the colder months, the southern parts of our hemisphere are being warmed. In the areas near the equator, the atmosphere is warm and moist all year. The polar areas get colder, and not quite so cold. We are stuck in the middle. To our west, we have the Japanese current, which carries the warmer waters from the Far East up into the area near Alaska, and then south past our west coast. Similarly, the Gulf Stream off our east coast heads north with warm and moist air, then south from the cold and miserable weather of the North Atlantic to an area near Africa, where it turns west towards the Gulf of Mexico once again.

In each case, the waters of these streams take warm, moist air from the tropics, and come back cooler and dryer for replenishment of the warmth and moisture they have left behind. Much of this warmth and moisture they gave up in the form of energy, giving it to the low level jet streams and other weather systems in the atmosphere. Because of the radical differences between the west coast and east coast systems, and the presence of the jet streams between them, we have the basis on which severe weather can hang it's hat. The turning of the earth imparts a spinning effect, starting things to roll. As a given air mass swirls, it tends to converge on itself. Energy has been collected, and begins to add up. The tighter the mass gets, the more lifting there is near the center; the air has to go SOMEplace, and "up" is the only out it has. This air lifting up results in a lowering of pressure near the surface. We have a low pressure cell.

We also have warm moist air being driven upwards. When it gets high enough, condensation becomes evident, and we see the "clouds" of moisture. Not all clouds are of this type, of course, but the ones we are most concerned with get their start this way. The type of clouds to which I refer are the cumulus congestus, and then the cumulo nimbus. These two occur rather close to the center of low pressure. Farther out from the center of the low, we usually see altocumulus castellanus. Don't let these Latin names scare you, they are really very simple. Cumulus means heaped up, altus means mid level. Nimbus is low level, and castellanus means it has turrets, like a castle. Combinations of these Latin names fairly easily describe the clouds we see early on in the life of a bad weather situation. There are other clouds we will introduce in time.

Now then, we have a low pressure system spinning into a tight cell, much like a figure skater pulling in her arms. She increases speed, doesn't she? The amount of energy hasn't dramatically changed, but it is more tightly packed. Winds around the system increase, and always spin counterclockwise in the northern hemispheres. These winds draw the warm, and moist air up from the Gulf of Mexico, where the jet stream can carry it off to the northeast, along a warm front. The winds continue in the spiral, but they have lost part of their energy. As these winds get around to the north side of the low, they get chilled, having lost the remainder of the heat energy to the air in the northern states. They pick up the colder air from the polar regions and Canada, east of the Rockies, and find it almost devoid of moisture. The cold and dry air invades behind the warm and moist air, advancing as a cold front.

This cold air tends to keep close to the surface, and the warmer air tends to rise. When the cold front gets deep enough into the warmer air, it acts much like a bulldozer, forcing the warm and moist air upwards at a spectacular speed. This lifted air is rather unstable, and is undergoing rapid change. The moisture condenses out very rapidly, giving us the large and dangerous thunderheads. They go up so fast and so high, that sometimes the jet stream tears off their tops. Introducing the anvil-topped cumulo nimbus.

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WEATHER TRAINING BEGINS (Continued)

You may have guessed by now that high winds are heading INTO the storm at this stage. Air enters the storm in the lower center, rises, and tends to rotate counter-clockwise. As the storm moves along over the ground, friction keeps the lowest levels from going too far, too fast. The top of the storm reaches northeasterly well ahead of the bottom segment. As the winds blow out through the front and sides of the tower, they will sometimes take along some of the cloud, giving us the mammatus-like protuberances. If there is enough wind blowing into the center of the storm, a small high pressure area will develop within the storm, and the boundary between it and the low pressure area caused by the rising warm, moist and unstable air will be the scene for a lot of the moisture freezing and becoming hail. The larger the pressure gradient difference, and the larger the storm, the more moisture available; e.g., the larger and more the hail. If you experience hail, especially dime-sized or larger, the more trouble you are in. You are very close to the small low pressure system within the storm, called the mesolow. Because it is a low pressure cell, it is spinning cyclonically. We call that a mesocyclone.

On rare occasions, this mesocyclone will lower from the storm, being unable to rise through the storm as it develops, and it has to go SOMEplace. This is where we find it lowering to form a wall cloud. In even rarer cases, it will lower so much it comes away from the main body of the wall cloud which used to surround it, and it will take on a funnel shape. If that son-of-a-gun reaches the surface, we call it a tornado. The storm that spawned it might be 40 to 50 thousand feet in height. It might also be only a matter of about 20,000'. The higher the top, the greater the possibility it will be a monster.

A scale has been developed by which we measure the damage caused by any tornadoes. It is named after Dr. Ted Fujita of the University of Chicago, who first described it mathematically. The very small tornadoes that cause minimum damage are rated F0. The monster that destroyed much of Newton Falls, OH in 1985 was the only F5 in the U.S.A. that year. The F0 to F3 storms are quite common to this area, but are very hard to forecast. The F4-F6 storms are a bit easier to predict, but are rare.

The NEXT generation of RADar, (NEXRAD), operating on the Doppler principle, will provide us some lead time in predicting the biggies, but cannot do nearly as well with the short-term small tornadoes. Spotters will have to hone their skills and their systems, and be better prepared in the future to understand these weather phenomena, and to ready themselves to serve in the public interest, convenience or necessity.

Mr. Marvin Miller is the Area Manager for the National Weather Service in the state of Ohio, and he is also the Meteorologist In Charge at the NWS Forecast Office, here in Cleveland. He is also a strong booster of ham radio. Last, but certainly not least, he is the featured speaker at the NCARC and LEARA meetings in March. Mark March 5 (NCARC) and/or March 31 (LEARA) on your calendars. He will be bringing along a new NWS film entitled "Before the Warning", featuring the famous blue box invented by LEARA trustee Pat Shreve, W8GRG, and footage from Newton Falls, and Niles, OH. While you have your calendars out, mark the week of March 22 as Tornado Awareness Week in Ohio, and March 25 as our annual statewide drill at 10:10 AM

I hope this little lesson in severe weather will be helpful to you in better understanding what we are dealing with in the coming severe storm season. Watch the media reps with their weather portion of the nightly news. When you see the fronts starting to line up as I have described above, you will have a better idea of when to ground your antennas and unplug the computer before leaving for work, and you will know when to expect one of us to put the machines in the area into "Weather Alert". We'll be counting on all of you to participate in our nets, especially if you are able to give us a new perspective on given storms, or report something nobody else has. Remember, we will only be looking for certain reports such as high winds, hail, severe lightning, heavy rains and certain clouds. The next meeting will allow you a chance to pick up a folder describing these things in more detail. If I gave you all the facts now, you might be tempted to declare yourself to be an expert, and not show up. Shucks, even I am not an expert! I intend to be there, will you?

More to follow. . .

CONSENT AGREEMENT APPROVED BY HAM

In an effort to clear his name, Robert J. King, WB8WKA, of Redford, Michigan, has circulated documents to various amateur radio publishers concerning charges alleging he maliciously interfered with the 146.04/146.64 MHz WB8CTY/R DART (Detroit Area Repeater Team) repeater on March 31, 1985. (See VOL. 8, issue #3).

On August 28, 1986, a consent order became effective, approving an agreement between King and the FCC. The consent agreement terminated license revocation and suspension proceedings against King's amateur license as well as vacating earlier findings and conclusions against King's commercial radiotelephone license.

King was arrested and criminally indicted in connection with the 1985 incident. The FCC suspended King's commercial license for 14 days under its authority to suspend licenses for abuses involving any radio service. The suspension period was limited to 14 days because the commercial license was required for his job. King is a broadcaster.

While denying that he interfered with the operation of the Detroit Area Radio Team's repeater, King agreed to the 14 day suspension. The commission then initiated proceedings to revoke King's amateur radio license on the basis of his agreeing to the 14 day suspension. King strongly objected and filed a petition for reconsideration.

Administrative law judge Chachkin ruled that the FCC could not revoke King's amateur license on the basis of his agreement to the 14 day suspension of his commercial ticket. Judge Chachkin rules that "the bureau carefully concealed from Mr. King and his counsel its intentions to use Mr. King's consent to the suspension of his commercial radio license as a basis for seeking revocation of his amateur radio licenses."

In view of this ruling, the FCC entered into the consent agreement as a means to conclude the revocation proceedings against King. The signing of the agreement does not constitute an admission by either King or the FCC of any violation of law, rules or policy. Under the terms of the agreement, King agreed to make a voluntary \$500 tax deductible contribution to the US Treasury in recognition of the costs of the FCC enforcement effort.

King also agreed to operate his amateur radio equipment in compliance with the commission's rules and the standards of good amateur practice. The commission required King to waive any rights to seek awards of costs or fees related to the proceedings from the United States, the commission, the Private Radio Bureau or its chief and/or the field operations bureau and/or its chief.

The Private Radio Bureau agreed that the document served to resolve all issues arising from allegations of violation of the amateur rules by King on/or about March 31, 1985, and that no further action would be taken against King or the licenses he holds as a result of those allegations.

Both the Detroit Area Repeater Team (DART) and Lawrence Macionski, WA2AJQ, filed objections to the consent order. In rejecting both Macionski's and DART's petitions, the FCC added that both "DART and Macionski are seeking the use of the Commission's processes to aid their positions in private litigation between them and Robert J. King." Judge Chachkin said that whether the dispute between King and Macionski has merit should be resolved by the courts in the State of Michigan.

King presently has a lawsuit pending against Macionski and Nick Nicholas, N8GIR, another DART member in a Michigan Circuit Court. King alleges that both Macionski and Nicholas had previously filed unfounded false and defamatory complaints and uttered untrue statements about him over the amateur airwaves.

LAWSUITS FILED AGAINST CHIPMAKERS

General Instrument Corp. has filed two lawsuits against two Phoenix firms that allegedly manufacture and sell illegal computer chips that enable all satellite delivered programming to be received by backyard dish owners. General Instrument filed the suits against Picture Perfect Engineering and Miller Enterprises charging that the chips they provided defeat their VideoCipher II technology.

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LAWSUITS FILED AGAINST CHIPMAKERS (Continued)

The chips are commonly known as "Musketeer" (one for all and all for one) chips. The installation of the prom chip in place of the one in the original descrambler allows for all programming to be received while paying for just one service. General Instruments estimated that over 1,500 illegal VideoCipher II descramblers are now in use.

The suits were filed during early January. The firms were going to sell the bogus chips at the (Las Vegas) Consumer Electronics Show, but General Instruments obtained a Writ of Seizure and Federal Marshals confiscated the chip boards ready for the CES show. Also seized were names of business associates and customers.

The defendants were charged with violating GI's copyrights on the VideoCipher II technology as well as anti-piracy provisions of the Cable Communications Policy Act of 1984 that prohibit the manufacture, distribution, import or use of products designed to receive scrambled signals without authorization.

Working with the Royal Mounted Police in Canada. The US Customs Department will confiscate future shipments of the illegal chips. General Instruments plans more counterattack activity to protect their VideoCipher II copyrights. The firm also said that new descramblers are redesigned so that they will no longer be vulnerable to attack and that new software would render existing pirate "Musketeer" descramblers inoperative.

General Instrument has developed an Integrated Satellite Receiver which has a VideoCipher II descrambler already installed. The initial run of 4,000 VideoCipher II 2500R satellite receivers have already been shipped to dealers. The San Diego based firm said that eventually most satellite receivers will be sold with the descrambling mechanism already built in. The receiver can also receive 24 C-Band and 32 KU-Band channels and digital stereo audio.

REPEATER COURTESY de Mike K9SSL

The question of proper repeater use comes up often, and always the same dilemma presents itself - - - "what is proper repeater use?".

The truth of the matter can probably be summed up simply by saying that any legal use of amateur radio is permissible on our repeater. Obviously no one is going to use CW-RTTY-PACKET, etc. (even though it would be technically legal), so it becomes a question of common courtesy.

Some hams I'm sure would like to see the repeater available 24 hours a day solely for emergency calls. Others would like to use it as a convenient place to find their ham buddies and have an enjoyable QSO. And others would like to use it to make convenient phone patches to home or friends. At times, a group of members interested in Public Service, would like to use the repeater to handle communications for a marathon relay. These and other uses can and must be accepted by all as proper uses of the repeater.

So what's the bottom line you might ask? Simple - -

1. Each of us respects the others right to use the repeater in the way that interests him/her most.

2. Use common courtesy when using the repeater for any extended length of time by inviting others who might be listening to join in, or to make any call they might like to make to another station, etc.

3. Announce between every few transmissions that you are standing by for a few seconds for any station which might like to join in or make that call.

The diversity of amateur radio is just what makes it the enriching hobby that it is. Let's all promote that diversity by encouraging courteous use of the repeater. Thanks and 73's from Mike K9SSL.

MORE WEATHER TRAINING de Jerry Murphy, K8YUW

So far in this series, we have discussed the future reorganization of the National Weather Service, how it will affect us in the amateur radio fraternity in Ohio, and a simplified explanation of how a large tornado forms. This article will build on those features, and introduce more technical terms we SKYWARN participants will need to know BEFORE a weather alert.

The National Severe Storms Forecast Center, (SELS), in Kansas City, MO has the responsibility of monitoring all weather systems in the lower 48 states, and issuing watches for any systems which might create severe weather. They issue these watches to the forecast offices, such as the one in Cleveland, who in turn issue them to the local public. The original watch area is usually in the form of a parallelogram, sometimes described as 70 miles either side of a line from point A to point B. It might just as easily be described as north and south of that line, or east and west. The end result is a large geographic area in which severe weather might occur, usually in the next six hours. We call that a "box". It might be for severe thunderstorms or tornadoes. In either case, the local forecasters plot that box on a map, and then issue watch advisories for the counties in those areas within the box. Whenever a box includes any Ohio counties, the hams of LEARA man the station at the NWS Forecast Office in Cleveland.

The HF rig is the first thing to come on line, listening for any reports from around the state, and for liaison stations to the other NWS offices elsewhere in Ohio. A General class license (or higher) is required for the 75 meter SSB station. Someone from home could handle this duty initially.

Next to come on line is the famous "blue box", painted the same blue color as the other equipment in a typical NWS office. This is a cabinet which contains the micro-controlled Icom 22S and power supply. The best feature of the box is the micro controller which permits operation by unlicensed persons should there not be a ham in the office. A control ham operator elsewhere can enable the micro and the response pushbuttons by TT command.

If a control operator elsewhere, or locally, has enabled the pushbuttons, we might hear a response of "R" or "?" in CW. These are the transmitted responses should someone, anyone, push the buttons labeled "copied okay" or "please repeat". Perhaps you wonder why this feature? Should you or any other ham observe a weather related problem that is to be urgently sent to the NWS, and if nobody is there who is licensed, a control operator can poke some tones which alert the siren module in the blue box, unsquelch the receiver, and enable the response buttons. These are only used during emergencies. Once the report has been made, the control operator can resquelch the receiver and disable the buttons, or he can leave the rig on in a receive-only mode. If the NWS observes something on radar that is likely to cause us to start jabbering about the weather, they have the option of turning the rig on in the receive-only mode. In any case, when the rig is in listen-only mode, it automatically sends a CW identifier periodically, telling us that the rig is on, and listening for reports, much like the repeaters do.

Another option available is the alert mode. Should there be a weather-related emergency, the lead forecaster might push the panic button which sends out the "QST" message, announcing there is need for someone to call immediately for a weather alert. If you hear that "QST", and if the control operator is out of the room and not responding right away, please call one of us on the phone or one of the other repeaters immediately. This is only done during an emergency, so don't wait around! CALL!

Every once in a while, by the way, the micro hears some tones which it thinks might have been a legitimate control command, but is not on the list of commands it is programmed to perform. Sometimes, this might be a child's voice, or some other series of tones. It will send a "?". If the "?" is the only thing you hear, don't worry. We live in an RF jungle out there at the airport, and tones are flying around from all sorts of intermod.

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MORE WEATHER TRAINING (Continued)

It takes two Technician Class or above to man the blue box during a weather alert, and two others with General or above for the HF position. Then, it takes someone, not necessarily licensed, to coordinate between these two positions. We need HELP!

You have already read about the "big five" types of reports: winds, hail, clouds, rain and lightning. Why only these things? And what if I want to get on just to make noise and let my call sign be heard? Ah SO!

To be classified as "severe", a storm has to have winds at 50 knots or greater. That's 58 MPH for you landlovers. Or, it must have hail of dime size ($3/4$ " or greater. Winds of that speed, or hail of this size, will cause appreciable damage. When SELS issues a severe thunderstorm box, what they are really saying is that these conditions are possible in the watch area. They may even take it a step further and say that tornadoes are possible in the watch area. Not every thunderstorm is severe, but many are. Not every severe thunderstorm spawns a tornado, but some do. In any case, the National Weather Service wants to have warnings in place before those things happen. If you experience those winds or hail, it is imperative to get the word to the NWS so that they can warn the populace that have not yet experienced those affects.

Additionally, they want to know about the possibility of flooding. While the present radar can say that a lot of rain is falling, or a little, there is no way for the radar to say for sure whether flooding is possible in the smaller storms. That is where we hams can provide the groundtruths. If you are experiencing enough rain to cause flooding, they want to know about it at NWS. In Ohio, we use the measurement of an inch or more in an hour or less, as the criterion for taking a closer look at the flooding possibility. That's three of the "big five".

Last month, I mentioned a few of the clouds we hams should be trained to observe. You have seen the side-view of a classical thunderstorm in the Spotter's Guide, (or soon will!), and you know about the flat-top of the anvil, and the mammatus that might be present. You read about the lowering at the rear of the storm that is the wall cloud, from which a tornado might appear. Also mentioned in the Guide are shelf and roll clouds, among others. All of these clouds should become familiar to you. These special clouds make up the fourth thing we wish to hear about from our spotters. To fill out this paragraph, though, let me merely mention that we wish also to hear of frequent and severe lightning. ALL lightning is dangerous. Take heed!

Remember back to last month when I described the high winds entering the lowermost part of the center of the strong cell. As it does so, it goes upwards quite rapidly. This updraft does not permit much rain to fall right under it. But there is sometimes a special type of nimbus (low level) cloud, may or may not be attached to the main tower, and it looks for all the world as a small shelf hanging from the lower part of the storm center, and in advance of it. Presenting the shelf cloud! It is usually in the area of the gust front. Sometimes confused with the tail cloud pictured in the Guide. The smaller storms don't have one that is quite so noticeable. If you DO see one, this storm is getting close to the severe limits. Even more rare is the roll cloud. Winds arriving at the updraft point suddenly well up into the atmosphere, creating a swirl as they do so. If the winds are violent enough, and if enough moisture is present, a special swirling cloud appears, looking like a giant cigar rolling ahead of the storm. A storm with a roll cloud is certain to be severe, at least in the upper parts. Perhaps it won't bother the ground, but let the NWS know of this one immediately!

So there you have the big five described and defined: damaging winds, hail, heavy rains, special clouds, and frequent and severe lighting. Nearly everything else, and certainly everything of lesser intensity, is not in the category of severe, and we will NOT be expecting you to report it. We deal only with the emergency types of things; the normal, garden variety storms are the usual business of the NWS, and the public is not at great risk, so we are not permitted to make them the subject of a weather alert. We can certainly discuss them among ourselves, and I would encourage that, but not in a directed net with the sole function of reporting severe weather to the NWS to assist in the warnings to the public. DON'T WASTE NET TIME!

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MORE WEATHER TRAINING (Continued)

Your reports of these "big five" will be immediately relayed to the severe storm forecaster, who will in turn use your reports, and others received by other means, in writing the warnings and advisories to the public. We have frequently heard ham radio reports being used as the basis for issuing warnings, and mentioned in the media. Listen to NOAA Wx Radio during these events, and hear your reports being related to the public. It's a great shot in the arm, and makes you feel good to know you have served the public!

Interesting Catalogs part 2 - from Steve Stroh N8GNJ

This article continues where I left off in the July 1986 issue of the North Coast ARC Communicator.

47th Street Photo (June, 1986); 36 East 19th Street, New York, New York 10003, 212/260-4410. Good selection of consumer electronics at reasonable prices, including computer equipment, phones, audio, video, watches, and of course some cameras. Good catalog to have as reference; good selection.

Belden Electronic Wire and Cable(1982); P. O. Box 1980, Richmond, Indiana 47374, 317/983-5200. Definitely not a catalog per se, more like an engineering reference book. It comes in really handy for trying to figure out specifications of cabling that you need.

C. O. M. B. (October, 1986), 1405 Xenium Lane N, Minneapolis, Minnesota 55441-4494, 800/328-0609. As they say, they are Authorized Liquidators. They have a smattering of everything sooner or later. Updated frequently, well worth getting on their mailing list.

Computer Products & Peripherals Unlimited (1985); 18 Granite Street, Haverhill, Massachusetts 01830, 617/372-8637. Great selection of surplus computer gear and peripherals at good prices.

Consolidated Electronics (June/July 1986); 705 Watervliet Avenue, Dayton, Ohio 45420-2599, 513/252-5662. Good selection of digital components, speakers, and tools.

DAK Industries Inc. (Early winter 1987), 8200 Remmet Avenue, Canoga Park, California, 91304, 800/325-0800. Similar selection to COMB, but concentrates on consumer electronics.

Datapro Electronics (1085); 3029 North Wilshire Lane, Arlington Heights, Illinois 60004, 312/870-0555. Some nice kits, components, good electronic hardware selection, and some electronic surplus. Recommended

DC Electronics (1986); P. O. Box 3203, Scottsdale, Arizona 85257, 800/423-0070. Good selection of digital components, printed circuit supplies, and some really neat ICs, like moisture detectors, low power amps, am receivers, etc. Recommended

Diamondback Electronics Company (1985); P. O. Box 12095, Sarasota, Florida 33578, 813/953-2829. Good selection of misc. components and books. Recommended.

Dick Smith Electronics (1986/1987); P. O. Box 8021, Redwood City, California 94063, 415/368-1066. I know you've seen this outfit's ads in the various ham magazines. Send in the \$1.00 and get the catalog. It's a good catalog, worth the \$1.00. Highly recommended.

Digi-Key Corporation (May-June, 1986); P. O. Box 677, Thief River Falls, Minnesota, 56701, 800/344-4539. Little of everything. Excellent reference. Highly recommended.

EDS Communication Services; P. O. Box 92, 9 River Terrace, Johnson City, New York, 13790, 607/798-7111. Great selection of telephone equipment.

Electronic Supermarket (855E); P. O. Box 988, Lynnfield, Massachusetts, 01940, 617/532-2323. Fantastic source of bargains (highest rating I give). In tabloid format, around 40 pages. Very highly recommended.

ETCO Electronics; North Country Shopping Center, Plattsburgh, New York, 12901, 518/561-8700. Lots of surplus stuff. Worth a stamp.

Fair Radio Sales (WS-86); P. O. Box 1105, Lima, Ohio 45802, 419/223-2196. Lots of military surplus, but starting to branch into commercial electronic surplus.

Fordham Radio (1987); 260 Motor Parkway, Hauppauge, New York, 11788, 800/645-9518. Good selection of test equipment and tools.

Goldsmith Scientific Corporation (1985); 720 East Industrial Park Drive, Manchester, New Hampshire 03103, 603/624-8030. Interesting devices; worth a stamp.

As you might notice, I don't have a great deal of RF catalogs. If you know of any, I'd like to hear about them. A postcard will do; it only costs 14 cents.

HR ARRL BULLETIN NR 12 Fm ARRL Headquarters Newington CT - February 6, 1987

Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

In an order adopted January 29 and released February 5, the FCC has denied the ARRL request for stay of the December 31, 1986, effective date of Docket 85 196, which transferred maintenance of the amateur question pools from FCC to the Volunteer Examiner Coordinators. FCC concluded that the request failed four point test. The FCC feels that the concerns expressed by ARRL have been satisfied by an agreement amongst VECs to maintain existing exam questions until January 30, 1988. Further that VECs will cooperate in developing a common question pool. FCC has stated that it expects all VECs to adhere to this plan. While ARRL's petition for reconsideration on this matter remains pending, the status quo will be maintained AR

HR ARRL BULLETIN NR 11A Fm ARRL Headquarters Newington CT - February 4, 1987

Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

Acting in response to requests of ARRL and three others, FCC has issued a request for comments on a proposal inquiring if call signs could be issued by the private sector. FCC would only issue one 2X3 callsign for each new licensee, regardless of license class. This would be from the prefix block NA through NZ. FCC would then discontinue processing requests for any call sign changes. All other call signs would then be available to a Special Call Sign Coordinator or SCSC who could assign one or more supplemental call signs at the request of the licensee. A special call sign could be used in lieu of the FCC assigned call sign during station ID required by 97.84.

An SCSC would be operated on a not for profit basis but would be allowed to recover administrative costs. The preliminary view of the FCC is that having one SCSC would be a more efficient system in preventing the same call sign from being assigned to different stations and avoiding inconsistencies of assignment. Further, a single SCSC would minimize the number of points of contact between the SCSC and the FCC, thus holding the administrative burden upon the FCC in check. Written comments on this proposal, numbered PRB 3, are due on or before April 23, 1987, with reply comments filed on or before May 22 AR

HR ARRL BULLETIN NR 5 Fm ARRL Headquarters Newington CT - January 13, 1987

Relayed by KB8NW/OBS via KB8PJ BBS - To all radio amateurs - BT

The first two applications for the DXCC Jubilee Award were received at HQ on January 5 from AA2Z and K1MM. The application from AA2Z shows he worked 100 countries in the first three days. As of January 9, a total of 18 applications has been received. For details on how to qualify for the Award see September QST, page 1. AR

HR ARRL BULLETIN NR 4 Fm ARRL HQ - Newington CT - JANUARY 13 1987

Relayed by KC3ET via KB1PJ BBS - To all radio amateurs - BT

In PR Docket 85-196, the FCC announced that it was turning over maintenance of question pools for the amateur examinations to the volunteer examiner coordinators VECs, as of January 1 1987. Under the FCC decision any VEC could, if he wished, have its own question pool independent of other VECs, and it could be easier or harder than others in use. The League, feeling that the amateur service would suffer if candidates could shop around for an easy exam, in September filed a petition for reconsideration. Similar petitions were filed by others. No answer to that petition having been received by late December, the ARRL then filed a petition for stay. Just before year end, the FCC released a further public notice, encouraging VECs to use the existing pool throughout 1987 and to cooperate in creating a new one. The League is evaluating the latest announcement to determine whether it goes far enough to render the ARRL petitions moot. Stand by for further information. AR

HR ARRL BULLETIN NR 3 Fm ARRL Headquarters Newington CT - January 12, 1987

Relayed by KB8NW/OBS via KB1PJ BBS - To all radio amateurs - BT

AMSAT advises that the launch of Phase 3C appears to be slipping to later in the year. A new launch schedule is expected to be published by ArianeSpace next month.

A new operating schedule for RS5 and RS7 is expected momentarily. Both satellites reentered eclipse cycles in early January. No further word on the launch of RS9 and RS10 has been received. Launch during January is still a possibility AR

Beginning Packet Radio Information by Steve Stroh N8GNJ

One of the most frequently asked questions on the Northeast Ohio Packet Radio Voice Net (Wednesday evenings, 146.82 repeater, 7:30 P.M., of which I am net control), is the question of where someone who is relatively new to Packet (or thinking of getting into it) can get some information. The following list of sources is my personal list of the best ways to learn about Packet.

The best book about Packet in my opinion is Get *** Connected to Packet Radio by Jim Grubbs, K9EI. It is published by QSKY Publishing, P.O. Box 3042, Springfield, Illinois 62708. I forget what the price was when I bought the book, but I believe it was around \$10.00. If I had to choose one source to get introduced to Packet, this would be it.

Although I haven't yet seen it, I'm told that the 1987 edition of the ARRL Handbook has an excellent chapter on digital communications in general, and Packet in particular. Available from the ARRL for \$18.00.

An excellent source of current information about Packet is Packet Radio Magazine. PRM is published by the Florida Amateur Digital Communications Association, Inc., 812 Childer's Loop, Brandon, Florida 33511, 813/689-3355. Subscriptions to PRM can be obtained either by joining FADCA or the Tuscon Amateur Packet Radio Corporation, P.O. Box 22888, Tucson, Arizona 85734, 602/746-1166. Membership in either group is \$15.00 per year. TAPR is primarily a Research and Development group, and is responsible for the TNC-1, TNC-2, the forthcoming Network Node Controller, software development, and host of other Packet projects. FADCA is primarily a Florida group, responsible for coordinating Packet activity in Florida.

The ARRL publishes a biweekly newsletter about Packet called Gateway: The ARRL Packet Radio Newsletter. It has good up to date information and is published biweekly. It is available from the ARRL, 225 Main Street, Newington, Connecticut 06111. For 25 issues, the price is \$6.00 for ARRL members, and \$9.00 for nonmembers.

73 magazine features a monthly column on Packet written by Harold Price NK6K, one of the major movers and shakers in the Packet Radio world. 73 also published an excellent issue devoted strictly to Packet; the August 1986 issue. A subscription to 73 is \$19.97 for 12 issues. Back issues of the Packet edition are available from 73 for \$3.50 plus \$1.00 shipping and handling. 73's address is 73 Magazine, Attn. Back Issue Department, WGE Center, Peterborough, New Hampshire, 03458-1194.

Another magazine that features lots of information about Packet is Computer Trader Magazine. It is published by Chet Lambert, W4WDR, 1704 Sam Drive, Birmingham, Alabama 35235, 205/854-0271. Subscriptions are \$15.00 for 1 year.

Spec-Comm (formerly A-5) magazine is also featuring more information. Although the magazine is primarily devoted to Amateur Television, the editor, Mike Stone WB0QCD, is trying to diversify the coverage of the magazine to all of the specialized modes of Amateur Radio.

Advanced Electronics Applications used to have a package of information about Packet free for the asking. You can write or call them at AEA, Inc., P.O. Box C-2160, Lynnwood, Washington 98036-0918, 206/775-7373.

For those of you that have computers equipped with modems, there are two other sources of information. The first is the CompuServe Information Service. One of the more active Special Interest Groups is Hamnet. The TAPR group has chosen CompuServe/Hamnet as their official electronic mail system, and as such carries a lot of good information before it becomes generally available in print or enters the Packet network. You can get more information about CompuServe by writing to them at 5000 Arlington Centre Boulevard, Columbus, Ohio, 43220, 614/457-8600. If you're already a member of CompuServe, simply GO HAMNET.

Another online source of Packet information is a Computer Bulletin Board System run by Pac-Comm, a Florida manufacturer of TNC's. The number of the Pac-Comm BBS is 813/874-3078. The Pac-Comm BBS can support 300, 1200, and 2400 baud.

(Continued)

Beginning Packet Radio Information by Steve Stroh N8GNJ (Continued)

A few articles about Packet follow:

H. Price, "What's All This Racket About Packet," QST, July, 1985.

H. Price, "Packet Radio-A Closer Look," QST, August, 1985.

M. Morrison, D. Morrison, and L. Johnson, "Amateur Packet Radio Part 1 and Part 2," Ham Radio, July and August, 1983.

L. Johnson, "Join the Packet Radio Revolution Parts 1, 2, and 3," 73, September, 1983; October, 1983; and January, 1984.

Finally, there is usually a monthly meeting of the North East Ohio Packet Users Group, an informal group with no dues or formal membership, which gets together to talk about all things Packet. The meetings are usually held (as of this writing, at least) at the Cuyahoga Savings Bank, 21945 Chagrin Boulevard, on the far East side of Cleveland. Meetings are announced on the Northeast Ohio PBBS' and the Northeast Ohio Packet Voice Net several weeks in advance.

HR ARRL BULLETIN NR 6 Fm ARRL Headquarters Newington CT - January 19, 1987

Relayed by KB8NW/OBS via KB1PJ BBS - To all radio amateurs BT

The ARRL Board of Directors held its annual meeting in Hartford on January 16 and 17, 1987. In the reports of officers, plans for expending in 1987 a quarter of a million dollars on the League portion of programs to recruit new people into amateur radio were revealed. Later in the meeting, the Board created an Education Task Force which would be staffed largely by volunteers from the educational field. It would review and update curricula for the teaching of amateur radio classes. The executive vice president is also to explore with amateur radio industry representatives ways to show the general public about amateur radio including, but not limited to, a mobile van display.

The Board reopened until June 1 the bidding process for the Diamond Jubilee National Convention in 1989. See minutes 31, page 62 March 1986 QST for details. The 1988 National Convention at Portland, Oregon was rescheduled to September 9 to 11, 1988.

The Board accepted the report of its Blue Ribbon Committee on amateur radio emergency communications, and adopted its call for creation of a permanent public service steering committee.

The Board thanked the AD HOC committee on amateur radio digital communication for its work to date. The committee was also asked to develop a proposal for facilitating message handling via packet radio. The sixth ARRL amateur radio computer networking conference was authorized for August 29, 1987 in the Los Angeles area.

The Board took another step toward refurbishing WIAW and adding a visitors center at HQ. The officers and staff will develop and implement a plan for the raising of funds for construction, maintenance and related improvements to the property. A committee for the museum will be established, to ensure that the focus of this aspect of the project is on the future. No funds are to be expended for architectural or engineering development until 10 percent of a fundraising goal shall have been achieved. Progress will be reviewed by the full Board before the bidding process starts, and regular reports will be made through QST.

Serving on the executive committee in addition to president Price, first vice president Holladay and executive VP Summer, until the 1988 annual meeting, will be directors Frank M. Butler, Jr., W4RH, Paul Grauer, W0FIR, Clyde O. Hurlbert, W5CH and George S. Wilson, W4OYL. A revised travel policy was adopted to recognize changes adopted in the tax reform bill.

The present PR advisory committee will be replaced at the end of 1987 by a public relations committee staffed by expert volunteers. In the meantime, it has the task of studying a TV series designed to interest the viewer in becoming an amateur. The Board created an AD HOC committee to draft ethical guidelines for amateur radio/media contact. The Board strongly supported a new membership service, the timely notification of license renewal deadlines.

Minutes of the meeting will be in the March issue of QST. The next meeting of the Board will be in Atlanta, Georgia July 9 and 10, 1987 immediately prior to the 1987 National Convention in Atlanta on July 11 and 12. AR

EVEN MORE WEATHER TRAINING de Jerry Murphy, K8YUW

Here is part four in the continuing saga of amateur radio operators in north eastern Ohio helping the National Weather Service in the SKYWARN aspects of Public Service.

"Thunder is good! Thunder is really impressive! But it's lightning that does all the work!" Mark Twain

In a previous article, I stretched the truth just a little bit. I said hams should report the "big five": hail, winds, clouds, flooding rains, and frequent and severe lightning. In fact, the NWS only requests the first four of those. By the nature of the beast, every thunderstorm has at least some lightning, or there would be no thunder. And not every lightning bolt will cause damage or widespread problems. The other four items they ask us to report have that potential. This article will home in on this fifth element we hams are interested in hearing about from Skywarn observers. In his book, Severe and Unusual Weather, Dr. Joe Eagleman calls lightning "fire from the sky".

In round numbers, there are some 100 people nationwide killed each year in the U.S. by tornadoes. There are twice that number killed by lightning. On any given day, there are some 44,000 thunderstorms in the atmosphere of our globe. That translates to some 2,000 per hour on earth every hour of every day. Fatalities around the globe are not known, but the 200 people killed in our country every year are far too many, given the simple rules for avoiding this hazard. By itself, lightning is good, beneficial in fact; our farms get a major amount of fertilizer from this phenomenon. And the static that builds up in the air around us needs to be dissipated in some way. Lightning takes care of these and other chores, but has no regard for the foolhardy people who do not treat it with proper respect.

We hams have proper regard, for the most part. So do the farmers who leave their fields, the golfers who seek safety, firemen and utility reps who must make plans for dealing with the possibility of disaster, and many others too numerous to mention here.

We hams are particularly vulnerable to disaster. The antennae we so lovingly put up to attract RF into our shacks make wonderful lightning rods. The chips in our radios and computers make terrific spark gaps to aid the static in getting to ground. Some packet radio users think Skywarn reporting is a terrific application of their mode. Realistically, how many are willing to risk their stations to this element of nature? Packet IS a reliable and terrific mode of communications, and there certainly IS an application for it in this Skywarn business. But only before and after, not during, a thunderstorm! I certainly would not want my station to suddenly become a crispy critter. For the same reason, we must not rely solely on only one station in a given area to get and relay all the reports to NWS with ANY mode. We are simply much too vulnerable.

When the storms are approaching the typical NWS office, those equipped with power supplies that can be independent of the mains will shift to that alternate source of power. Other users of commercial power do the same thing, including those with expensive electronic equipment, or with responsibilities for guaranteeing uninterrupted power, such as a hospital with patients in surgery. The more severe the lightning, the more the rationale for getting off commercial mains and going to backup power supplies, or the more the demand for extraordinary planning.

Power companies will call in personnel, public safety forces will make plans, and we hams will go to ground, or shift to our handheld radios, and disconnect the computers from mains and telephone modems. We and our many listeners need to know the status of the threat from lightning. One lightning bolt does not make a storm severe, (unless you are the one it hits!). But frequent or continuous cloud to ground lightning is a topic of concern for us and many of our listeners, and we will accommodate them as best we can.

Besides the book I mentioned above, there are several others in the public library systems, and I highly recommend you check them out and carefully peruse them. Keep it in mind that besides your own applications for the knowledge you gain, we have an audience on our Skywarn nets from many walks of life, and all of them are particularly interested in this aspect of thunderstorms.

(Continued)

EVEN MORE WEATHER TRAINING de Jerry Murphy, K8YUW (Continued)

In the Spotter's Guide, you'll find this definition for Lightning: Any and all of the various forms of visible electrical discharge caused by thunderstorms. Severe thunderstorms usually have very frequent and sometimes nearly continuous lightning. However, some non-severe thunderstorms also contain frequent and vivid electrical displays, while some severe storms are accompanied by little lightning.

All well and good, but just what is lightning?

There are several widely regarded theories as to just what lightning is, and how it is formed, but most are based in the theory surrounding ionization of ice crystals and charge separation within a large thunderstorm. Buzz phrases such as thermo-electric effect and induction charging make the textbooks very difficult for the average person to read and comprehend.

Simply stated, as ice crystals move about in the storm, sometimes up, and sometimes down, they acquire or release ions, and become more or less negatively or positively charged. The negative charges tend to gather near the base of the storm, and the positives near the top. As the storm moves over the ground, there will come a time when these charges overcome the resistance between the opposing charges, and a dramatic short circuit occurs. The flow of electricity from one point to another yields an incredible amount of current, under the influence of an even more incredible potential difference. This short circuit might be totally within the cloud, from one cloud to another, or - horrors - from cloud to ground. In any case, for our purposes, the flow of electricity will cause the air and other matter through which it moves to expand rather quickly, and cause the noise we call thunder. If we are within range of the noise, we will hear it. If we are several miles away, we will not, in which case we call it heat lightning.

Not all lightning comes from the base of the cloud. There are many documented cases of lightning coming from the anvil or main tower of the storm. I've said it before, and I'll say it again: ALL lightning is dangerous. Do not depend on lightning from a cell that has passed you by not reaching behind the cell to grab you.

All of you have read numerous times how to protect yourself from the dangerous effects of lightning, and I'll not belabor the point here. If you are in the open, and feel the hair on your head rising, crouch down. Do NOT go into the prone position! Electricity passing along the ground might find an easy path through you, rather than through the earth on which you are lying. If you are in a car, you are likely in a much safer place than outside; the protection of the metal auto body is usually sufficient. Storm spotters, take note.

While we want our spotters to place themselves where they can observe the sky conditions around them, we do not want any problems caused by lack of common sense. Stay in the car, avoid lightning if you can, and protect yourselves at all times. A fried spotter doesn't do the net much good. If you find yourself a good position on a hilltop, look around for trees. Stay as far from them as you can if they are a suitable target for lightning. A car on a hilltop, without the other natural lightning rods such as trees and tall structures, is not a very great attraction for lightning. If all you have for a car is a ragtop, maybe you better find a different way to participate in Skywarn, like coming to the NWS office to volunteer.

In the home, remove all sensitive electronic equipment from wires that leave the house. I like to remove my computer and fixed station from all antennae, electrical mains, and telephone modem cables. The antennae all go directly to ground. The chassis of every piece of equipment is bonded to each other chassis, and to ground. Things that CAN be unplugged, ARE. When the storms are close by, I stay off the phone. No person in my household takes a shower or uses the kitchen sink during a nearby thunderstorm. There are a few places in the house where the grounding conductor goes to a cold water pipe. Therefore, the water meter has a jumper around it, to ensure a good grounding path to earth. My water supply pipe is solid copper, buried 10 feet under the front yard; no plastic feedlines to my house! If I DID have plastic, I would have added the now-required grounding electrode to a driven ground rod. I might still do that, one of these days. On the other hand, if you enjoy letting the smoke out of your rig, and thrill at the sight of chapped chips, don't do any of this! END

Editors Note: Thanks Jerry for providing these exceptional weather articles.

HR DX BULLETIN NR 2 Fm ARRL Headquarters Newington CT - January 15, 1987
Relayed by KB8NW/OBS via KB1PJ BBS - To all radio amateurs - BT

Thanks to KB1BE and the Connecticut DX Association for the following DX information.

PETER I. Operation by LA1EE and LA2GV as 3Y1EE and 3Y2GV is expected to begin about January 24. Plenty of equipment is available and, with a good break in propagation, the two week all band all mode operation should be a huge success.

SOUTH GEORGIA. VP8BLQ hopes to operate VP8SG during the last week of January. Check the IARS Net on 14243 KHz and the INDEXA Net on 14236 KHz for info on this possible operation.

COCOS ISLANDS. TI2CCC announces that another group of Costa Rican operators will feature a full blown DXpedition from TI9 land from Mid January on. SSB, CW and RTTY will be offered. This operation is in addition to the recent TI9W group.

JOHNSTON ISLAND. KN4BPL/KH3 is found often on 3904 KHz at 0850Z. His usual operating habit, though, on 75 meters is 3806 KHz at 0830Z on.

COCOS KEELING ISLAND. VK9NS, Jim Smith, will operate as VK9YS and W5KNE, Bob Winn, as VK9YW, from February 10 to 24. Following this DXpedition, Jim expects to operate from Christmas Island in the Indian Ocean for a week, probably using the call VK9XS.

SEYCHELLES. Iris and Lloyd Colvin will be signing S79KG for another two weeks. QSL all contacts via the YASME Foundation.

ZAIRE. Tom Gregory, N4NW, with his new call 9Q5NW, can be found around 0500Z on 3794 KHz, as well as on 15 and 20 meters.

NAURU. C2/FK0AT is active now and he expects to move to Vanuatu, YJ, in mid January and then to Wallis Island, FW, for a week each. QSL all contacts via FK0AT.

BRUNEI. V85HG may be found on 14190 KHz between 2300 and 0030Z.

MALI. TZ6FIC likes 14022 KHz at 1800 to 2000Z.

INDONESIA. YB0WR is active with a big signal on 3798 KHz from 2100 to 2230Z.

LIBERIA. Celebrating the 25th anniversary of the Liberia Radio Amateur Association, Liberian amateurs will use the prefix 5L. During special activities throughout the year, the additional suffix /25 will be used AR

HR DX BULLETIN NR 1 Fm ARRL Headquarters Newington CT - January 8, 1987
Relayed by KB8NW/OBS via KB8PJ BBS - To all radio amateurs - BT

Thanks to K1XM, The Southern New England DX Association and the Yankee Clipper Contest Club for the following DX information.

GOLDEN JUBILEE DXCC. The Golden Jubilee DXCC was started this week, causing incredibly big pileups on very common DX stations. K1MM and AA2Z were the first to qualify.

FRANZ JOSEF LAND. UA1OT, UV100 and RZ1RWA continue to be very active around 1835 KHz at between 0000 and 0200, with strong signals into the U.S. 160 is currently the easiest way to work Franz Josef Land.

BELGIUM. Belgian amateurs now have 160 meters. ON4UN has been active most evenings since the first with a very very strong signal.

ASCENSION. ZD8CW has been active on 40 and 80 meters. Look for roger on 7001 KHz at 2300Z and on 3505 KHz at 0330Z.

INDONESIA. YB0WR has been active on 3790 or 3795 KHz daily at East Coast U.S. sunset.

TRISTAN DA CUNHA. Andy, ZD9BV, has been active on 21265 KHz at 1630Z. He will make CW contacts on request. He does not have his 40 M antenna up yet, but plans to soon.

ZIMBABWE. Z23JO, Mal, is active most days on 7007 KHz at his sunrise for about 10 or 15 minutes. Also, Z21SO has been active on 14193 KHz at 2000Z.

FAROE ISLANDS. OY7ML has been active on 80 meters between 3503 and 3510 KHz at 0200 to 0300Z daily. He can hear North American stations on 160, but usually North Americans cannot copy him.

(Continued)

HR DX BULLETIN NR 1 Fm ARRL HQ Newington CT - January 8, 1987 (Continued)

LLOYD AND IRIS. W6KG and W6QL have not been heard since they finished their D68QL operation. They are rumored to be going to Seychelles, S79. G4LJF is also reported to be operating from Seychelles, starting today.

DIEGO GARCIA. VQ9QM continues on the low ends of 40 and 80 meters, 3503 KHz at 2200Z and 7006 KHz at 0030Z.

NAURU. C21NI, active on 40 meter CW, is Sharad, FK0AT. Sharad is best known as FG7AS. He is expected to operate next from Vanuatu, YJ. QSL via FK0AT.

JOHNSTON ISLAND. KL7LF/KH3, Joe, is active on 15 and 20 SSB. He reports that KN4BPL is active on 40 and 80 meters, including 3795 KHz at about 0800Z. Joe expects to be QRT for a few weeks, starting in February.

NIGER. 5U7/I2VA has been active on 14195 KHz at various times. He has also been reported on 40 CW around 0000 to 0100Z.

GLORIOSO. FRG/FH4ED has been active on various 20 meter phone frequencies.

ZAMBIA. 9J2WS has been reported active on several days on 21242 KHz at 1700Z and 21024 KHz at 1630Z. QSL to 9L1WS AR

WHAT'S MY BEEF? de Jerry Murphy, K8YUW

During my travels around the state, I like to look for unusual bumper stickers on the cars that zoom by. Every once in a long while, I see one that relates to ham radio. Today I saw a pair of beauties, both of them right on the mark and directly related to amateur radio in a way that some of our brethren just cannot or will not comprehend.

One said: I owe, I owe. It's off to work I go.

The other: Not much worth having is free. Not much free is worth having.

I only have to use a very little bit of imagination to relate both of these gems to ham radio. How about you? You don't see it? Why, it's so simple...

Our predecessors in this hobby devoted much love and care in building something that has proven exciting and rewarding for most of us. We owe them for that. This is a terrific hobby, but it didn't have to be that way. We must each do all that we can to further the hobby, and get a new generation excited about it. Recruit new hams, train them, and help them become adjusted to our ways, or support them when they try to change our ways in a constructive fashion. We can't let such a great hobby and service fall by the wayside. We owe them that support. That's why we should accept offers to teach classes or be Elmers. We should each join and support at least one club, and help run the business of that club in a democratic fashion. That means run for office, serve on committees, help out on public service efforts, and the like, or strongly support those in the club that do pay those dues, and thus pay our own debt of gratitude.

On a much broader scale, we should support the national fraternity that is providing so much in the way of help in keeping our service strong. If you need me to list the many benefits to the hobby provided by the ARRL, you have been hiding from reality much too long, and whatever I say would fall on deaf ears. I don't ask you to agree with everything they say or do, but do give them your support. The services they provide are not all free, but they are worth having.

We enjoy the use of a great number of frequencies, most in some demand from other interests. So far, most of these bands of frequencies have been preserved for us by those who would provide service in the public interest, convenience or necessity. The frequencies are not really "free". We quite literally owe our respective governments something for the use of these many bands. Because we (some of us) do provide public service, our government lets us have many privileges, including self-policing, self-testing, etc. (within reason). We have a duty and responsibility to handle ourselves and our service in such a way that they will not likely become disenchanted, and pull those privileges we take so much for granted.

Think back a few years to another service that got a lot for nothing. They had it free, and didn't have to pay much in the way of effort or anything else for it. Look how that mess turned out. Take a second look at the second maxim, above. 'Nough said!

Next time you get ready to fire up on your favorite band or mode, think to yourself: "I owe, I owe...". When you hear a call for volunteers for some public service event or another, think of maxim number one, above. Join your fellow hams in saying: "it's off to work I go".

Northeast Ohio Packet Users Group Saturday, January 17, 1987 meeting - de Steve N8GNJ

In attendance were Tom Kryza KB8CI, Joel Rose N8JR, Pat Shreve W8GRG, Jerry Murphy K8YUW, Fred Niehaus N8CPI, Norm Into K8NI, Norb Beerli W8NIE, Don Ritchie K8ZGW, Chuck Schwartz N8HKA, Fred Sole WB8LVP, Robert Foney WD8IOV/KT, Vail Cummings W3GLP, Marc Linger W8SJV, and Steve Stroh N8GNJ.

Fred WB8LVP discussed a proposal that the ARRL currently has before the FCC called Skipnet. The proposal calls for certain stations to be designated HF Packet Teleports and to be able to automatically forward traffic on HF as is currently done on VHF. Forwarding of traffic on HF under automatic control is not allowed under current FCC regulations.

Tom KB8CI, who is the Ohio Packet Council's director for the 216 Local Area Network, was planning to report on OPAC's recent meeting in Cincinnati, but due to the length of the trip and the questionable weather, he didn't attend. As of the meeting date he is still waiting for a report to be sent to him on what went on at the meeting and any decisions that were made. As soon as the report is sent to him, he will distribute it.

Pat W8GRG announced that the Amateur Radio Foundation of Northeast Ohio is now legally incorporated as a not-for-profit corporation. One of the Foundation's goals is to allow area Amateurs to donate unwanted equipment to a not-for-profit corporation and take the tax deduction for it. The equipment will then be distributed as the ARFNE's board of directors see fit. Any equipment donated will not be resold, Pat emphasized. Representatives from each area radio club are being solicited for the Foundation. The Foundation currently has a temporary board of directors, which will be replaced as soon as the Foundation becomes more formally organized. Any clubs that are interested in getting more information about appointing a representative should contact Pat at ?

Tom Kryza KB8CI announced that NEOPUG had been asked to demonstrate Packet Radio at the Scout-A-Rama, which will be held in the Parmatown Mall on Saturday, February 21, 1987 from 8 A.M. to 5 P.M. If you are interested in helping out with this event, either at the mall or standing by for demonstration contacts, or by loaning equipment, please contact Tom Kryza at 671-7199.

There was a new voice repeater announced; it is in Newbury, Ohio on 147.015 MHz.

New landline Bulletin Board Systems: Cleveland Freenet @ 368-3888, WB8APD (ATT) @ 642-1630, Dave Speltz, KB1BJ @ 844-7732.

Pat W8GRG announced that he has a copy of the YAPP (Yet Another Packet Program) public domain Packet Radio terminal program by W7MBL for IBM PC's and compatibles. He will be happy to upload a copy to anyone who would like one. You can contact Pat at 751-7125; either an answering machine or a computer will answer.

For newcomers to packet who want to know how to send messages to hams in other areas, here are the instructions per Tom KB8CI and Pat W8GRG: SP N8XXX @ W6XXX. SP means Send Private; using this command rather than the normal Send command prevents casual users from browsing through files that aren't intended for them, and tying up the BBS unnecessarily. The first call is the station that the message is for and the second call is the BBS that the station normally uses. If the BBS that you specify is an obscure one, please embed in the text of the message a note to the BBS sysop telling him exactly where that BBS is located, so the sysop knows which way to send the message (North, East, or South).

There was a discussion of the accepted local practices which are understood by the experienced users, but unknown to the new users. It was agreed that more of an effort should be made to inform new users of these practices, rather than "jumping on them" when they "screw up".

One of the practices mentioned was why local users access the KB8CI BBS on 145.01 when ALL message files are automatically transferred to the W8GRG BBS on 145.05. Another was the desirability of keeping LOCAL ragchews off of 145.01. One practice that is very much frowned upon is DXing distant BBS' using digipeaters on 145.01. What new users don't seem to realize is that by doing this, they tie up all of the Digipeaters they are using and COMPLETELY paralyze each Digi for other users, and it isn't particularly effective anyway.

(Continued)

Northeast Ohio Packet Users Group Saturday, January 17, 1987 meeting (Continued)

Personal DX ragchews on 145.01 do not have this effect because the packets tend to be short, and plenty of time is left between packets. A BBS on the other hand, dumps large quantities of information onto the channel, and those packets are frequently clobbered, and have to be retransmitted, thus further degrading the channel.

While on this topic, it might seem be perfectly obvious to most users, but DX QSO's can only be effectively accomplished on 145.01, because that is the designated nationwide forwarding frequency, and chances are extremely good that there is a digi on .01 in any direction you wish to DX. If you do DX using .01, bump the frack parameter up to 8 or 11 on your TNC to allow plenty of time for the acknowledgement packets to return through the digis so your TNC doesn't needlessly retransmit data.

Another beginners tip; this one is on how to call CQ. There are two ways to do this: automatic and manual. The automatic method is to set up the beacon with a CQ message and then start up the beacon. If you do beacon, make sure you turn off the beacon when you decide to talk to someone, or the beacon will continue even during the QSO. The other method is from the command mode, set the UNP command to CQ, and then go into the converse mode and just hit the return key a few times. Your TNC will then send N8XXX>CQ. You can also type in a short message and then hit the return key and the TNC will send N8XXX>CQ (and your message).

Another hint for beginners is that if you are interested in operating Packet on HF, typical packet frequencies are 14.103, 14.105, and 14.107. You will probably hear packet activity on 14.109, but you will probably not be able to connect with any of the stations that you hear on .109 because almost all of them belong to a group which is trying to forward traffic on HF as efficiently as possible. Having individuals access these boards decreases efficiency substantially, so individuals aren't being permitted to connect with those boards. For more details on this group, see NK6K's column in the January, 1987 issue of 73 magazine.

The Northeast Ohio Packet Users Group meets monthly at the Cuyahoga Savings Bank's Community Room, at 21945 Chagrin Boulevard in Beachwood. The meetings are held once a month, normally on the second Saturday, at 10:00 A.M. NEOPUG is an informal group; it is not a club, and as such collects no dues and does not publish a newsletter. NEOPUG meetings are open to all interested persons; you do not have to be active on Packet. Anyone who has an interest in Packet Radio is welcome and encouraged to attend. There are frequently demonstrations and discussions of Packet basics for those new to Packet Radio. For more information, contact Tom Kryza KB8CI on the KB8CI PBBS on 145.01 or at 671-7199.

HR ARRL BULLETIN NR 7 Fm ARRL Headquarters Newington CT - January 21, 1987

Relayed by KB8NW/OBS via KB8PJ BBS - To all radio amateurs BT

ARRL has filed comments in FCC Docket 86 337 regarding automatic transmitter identification systems, ATIS. ATIS is a unique, unchangeable identifying number assigned to each transmitter at the time of manufacture. This signature is automatically added to each transmission and provides positive identification of each signal. In the notice of inquiry, FCC had sought comments on the benefits and costs of ATIS for various radio services, including amateur. The ARRL said ATIS for the amateur service is impractical and expensive. Amateurs transmitters are traded, borrowed, sold, modified, built and rebuilt constantly. This experimentation is one of the cornerstones of the amateur service. ATIS would also not be effective for identifying unintentional or intentional rule violators, since unintentional violators would properly identify their call signs while intentional violator would destroy or damage the ATIS system in their transmitters to avoid detection. Therefore, the ARRL requested that no ATIS requirement be imposed on transmitters in the amateur radio service AR

HR ARRL BULLETIN NR 8 Fm ARRL Headquarters Newington CT - January 26, 1987

Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

The FCC has announced that written examination credit for amateur radio exams, PR Docket 86 63, will become effective February 13, 1987. Also, the Office of Management and Budget, OMB, has approved a revised FCC form 610. However, the July 1985 version of the form 610. With an OMB expiration date of 3/31/88, will remain in use until revised forms are available AR

The ARRL Letter: Volume 6, Number 1 - January 13, 1987 via BARF80 BBS
Published by: The American Radio Relay League, 225 Main St., Newington, CT 06111

FCC FINES COMPANIES MARKETING UNCERTIFIED PHONES

The FCC office in San Diego, CA, has notified two companies that they are apparently liable for civil fines of \$2000 each for the unlawful marketing of long-range cordless telephones. The fines were issued to Crazy Guys Stereo and Video, of Chula Vista, CA, and Samhill Enterprises, Inc., of New York. The FCC notices informed the companies that they apparently violated FCC regulations which require that cordless telephones be certified by the FCC before sale. The FCC noted that the model being marketed could not be certified due to its design. The advertised range of the device was 60 kilometers. Certified cordless telephones generally have a range of less than 200 meters.

IS THE VOLUNTEER EXAMINER PROGRAM WORKING? YES, SAYS FCC

In a recent news release, the Commission said that between the start of the VEC program on December 1, 1983, until October 31, 1986, VECs had coordinated 6,784 sessions where 86,533 persons took an amateur examination. Approximately 60% of the applicants passed at least one examination element. The FCC also noted that VECs and VEs were doing outstanding work in screening the applications sent to FCC. Between October, 1985 through October, 1986, less than .5% of the applications were defective. Also, 97% of the applications were forwarded to FCC within the 10 day time period allowed.

SLOW FCC LICENSE PROCESSING

Patience is a virtue... FCC processing of amateur licenses at its Gettysburg, PA facility is running 6-8 weeks behind as of the beginning of the year.

GOLDEN JUBILEE DXCC AWARD UPDATE

The first four applications for the DXCC Golden Jubilee DXCC award were received at HQ January 5 from AA2Z, K1MM, K6AAW and W6GO. The application from AA2Z and W6GO shows they worked 100 countries in the first 3 days! As of January 9, a total of 18 applications had been received. For details on how you can qualify for the Golden Jubilee DXCC Award, See September QST, p.60.

CHANGES AT GETTYSBURG FCC

The General Radio Branch and the Aviation and Marine Services Branch have been merged at the FCC's Gettysburg, PA license processing facility. The new unit is called the Special Services Branch and is headed by Marcus Stevens. The FCC's contact person for amateur VEC matters at Gettysburg remains Larry Weikert.

FCC COMMENTS ON EPA RF EXPOSURE STANDARDS

The FCC has filed its comments concerning the Environmental Protection Agency's Docket A-81-43 concerning approaches for limiting exposure of the public to RF radiation. The Commission commented that it was not competent to recommend any RF exposure threshold to protect the public from RF fields since it did not have the expertise to make such a recommendation. FCC noted there is also considerable disagreement among the experts as to the significance of the academic research results pertaining to RF exposure. However, the Commission said that it was presently using the standards of the American National Standards Institute (ANSI), and from experience "the ANSI guidelines appear to be satisfactory for evaluating practical situations."

The Commission noted that the lack of uniform federal guidelines in this area had already led to a proliferation of local and state guidelines which may be "inconsistent, unreasonable, and not supportable from the standpoint of protecting safety and health." The Commission urged EPA to recommend a specific exposure standard, one which would not be so stringent as to be unduly disruptive to the broadcast industry.

ARRL REPLIES TO CTIA COMMENTS

The Cellular Telecommunications Industry Association (CTIA) submitted comments to FCC in a rulemaking regarding Cellular Telephones, which stated that "The national organization of ham radio operators did not oppose the Privacy Act." The League has now submitted a reply comment asserting that "Both in official Board of Directors policy actions and in oral and written testimony before... [Congress] the League indicated its dissatisfaction with the Bill." The League further said that the Congressional prohibition on monitoring certain radio frequencies does nothing to protect the privacy of communications by cellular telephone users and cellular users should be informed of that fact. Furthermore, "restrictions on frequency access by owners of radio receivers are misguided, and unfair." Privacy should be maintained through encryption, or at least a label telling the user his communications are not private.

SCHOLARSHIPS AVAILABLE

The Dayton Amateur Radio Association (DARA) and the Atlanta Radio club both have a number of \$1000 scholarships available.

The DARA scholarships are available to any FCC licensed amateur graduating high school in 1987. There are no restrictions on the course of study, and consideration is given for financial need, service to Amateur Radio and community involvement. Applicants are not restricted to those pursuing four-year degrees. Those working toward associate degrees or planning to attend an accredited trade or technical institution will also be considered. Application forms and further information can be had by writing to DARA Scholarship Committee, 317 Ernst Av., Dayton, OH 45405.

The Atlanta Radio Club has up to three \$1000 scholarships available to any licensed amateurs who are graduating from high school and entering an accredited college or university for the first time in 1987. Candidates will be judged on their grades, citizenship and leadership qualities, Amateur Radio achievements, and financial needs. For an application form write to Phil Latta, W4GTS, 259 Weather-stone Pkwy, Marietta, GA 30067.

HR ARRL BULLETIN NR 15 Fm ARRL Headquarters Newington CT - February 12, 1987

Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

John Thernes, WM4T, has won his longstanding tower suit against the City of Lakeside Park, Kentucky. The cities zoning regulations had, in effect, excluded all antenna towers. Last year, after the Federal District Court had ruled against him and upheld the Municipal ordinance, Thernes took his case to the Federal Appeals Court. There, relying on PRB 1, the appeals court vacated the district court judgment and sent the case back down to the district court for reconsideration. The city continued to refuse to settle to Thernes satisfaction, and Thernes was prepared to continue his fight in Federal Court. On February 12, the City agreed to sign a full consent judgment that provides for a 65 foot tower and an 8 foot mast, for a total of 73 feet. See the ARRL Letter and QST for further details AR

HR ARRL BULLETIN NR 14 Fm ARRL Headquarters Newington CT - February 11, 1987

Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

The FCC has dismissed the ARRL petition to release the 17 Meter band, 18.068 through 18.168 MHz, to U.S. amateurs. This band was allocated to radio amateurs worldwide at the 1979 WARC Conference, and about 65 countries are currently allowing their radio amateurs to operate there. In the U.S., amateur occupancy of the band is contingent upon the relocation of U.S. Government fixed operations. FCC said that agencies within the U.S. Government had informed them that the band will be required for their operations through July 1, 1989. However, FCC said it would continue to monitor the government usage of the 17 Meter band, and it may be possible to provide for amateur sharing of the band with government operations prior to the July 1, 1989 date AR

Written Examination Credit Delayed

The FCC has notified VEC's to postpone allowing examination credit for all amateur operator written examination elements until approximately January 15th. Gettysburg's Larry Weikert, Chief of the General Radio Branch notified VEC's by telephone of the delay on December 18th -- three days after the provisions of PR Docket No. 86-63 were to have gone into effect.

Weikert said the new rules allowing VE's to administer written tests (and to issue a one year credit certificate if the required telegraphy examination was failed) "were to have been effective December 15, 1986, but were contingent upon Office of Management and Budget approval of the required revisions to FCC Form 610. OMB has not approved the form yet, therefore the rules can not be effective. The instructions to VEC's at this point are not valid." I asked how we were to handle any examinations where written exam credit had already been given. "You will have to fight with DC," he said. We placed a call to Washington, but as of press time, this matter has not yet been resolved.

The "Paperwork Reduction Act of 1980" requires OMB review and clearance on all public information collection activities. Weikert noted "it normally takes 60 days to approve new government forms." A November 20th FCC Public Notice asks for public comment on the new Application for Amateur Radio Station and/or Operator License (FCC Form 610). It lists the "Estimated Annual Burden" as "118,750 Responses, 9,856 Hours."

The newly revised FCC Form 610 is not the only amateur radio form being considered by the Office of Management and Budget. A December 9th Public Notice confusingly notifies of a new Amateur Radio Operator/Station license "extension". This could be connected with the proposed Novice Enhancement proceeding. The "Estimated Annual Burden" on this is listed in the Notice as 40,000 Recordkeepers, 40 Hours." It could be something else!

Household Member Ham Operation

Hearsay has it that the FCC may authorize family members to operate ham radio under the authority of the amateur's operator/station license. While this is probably "groundless gossip", the Commission's Office of Plans and Policy did indeed make this recommendation as part of their Working Paper #20 released this past August. Here is a quote from page 85 of the report written by FCC Researcher Jim McNally (and amateur WB3APV).

"The Commission may wish to inquire into the feasibility of permitting extensive personal communications...with members of the household of a licensed amateur operator being permitted to operate that amateur's equipment for home-to-mobile (or portable) communications, even if the licensed operator is not present or not a party to the conversation. All such communications would be identified by call sign of the authorized amateur operator, who would have ultimate responsibility for the proper use of the station. Interstate communications by such unlicensed operators need not be permitted, though there may be cases (particularly in emergencies) where they may be desirable. The operating discipline that is characteristic of the ARS may be sufficient to minimize abusive operation.

The cost associated with this approach is a potential shift away from the experimental/instructional communications of the ARS to more expedient communications, or purely recreationally communications. Nevertheless, such a change in the fundamental nature of the ARS would still be in the hands of the amateurs who, in charge of this communications activity by members of their households, would be able to initiate appropriate action needed to maximize the overall value of their service (e.g. such type of operation might be confined to less desirable frequency bands), or cause such operations to be discontinued if significant problems developed."

"Good Amateur Practices" Group?

Don't be surprised if an Amateur Ethics Committee is created with the FCC supporting their recommendations to the point of issuing sanctions against those who violate Part 97.78 decreeing that "good amateur practice" should be observed by all licensees. At least one Commissioner is unhappy with the current direction and level of cooperation among amateur radio operators.

(Continued)

"Good Amateur Practices" Group? (Continued)

Florida amateur, Henry Luhrman, W4PZV, sent a letter to Commissioner Dawson protesting the activities of a group known as the "Black Sheep Net" who operate domestically in the so-called "DX Window" - 3.790-3.800 MHz. Dawson responded to Luhrman's letter and sent copies of her response to members of the net. Some answered her letter. In any event, the QRM went away -- at least for a while. It is now reported back.

Dawson wants amateurs themselves to spell out what they feel good amateur practice consists of. Jack Richards, Dawson's Legal Assistant, called in ARRL Washington Coordinator, Perry Williams/W1UED, last month to discuss beefing up of Part 97.78 and the possible establishment of an amateur ethics group which would discuss and decide on proper amateur operation. This would then be used as a standard by FCC monitoring stations and the Volunteer Monitoring Service.

Williams said that the concept needed the right kind of support from the FCC. He said FCC Field Office Personnel should make more of an effort to work with local auxiliary groups, interference committees, and so forth. He added, "The Private Radio Bureau should take the best cast they have got built on Volunteer Monitoring evidence before an Administrative Law judge. Until those things happen, the volunteers are not going to feel that the FCC is serious about using their help to clean up problems in the Amateur Service."

Richards also said that Dawson would like to write a "guest editorial"...for QST to stimulate amateur involvement.

Another interesting comment from Perry's report on his visit to Dawson's office is the Commissioner's are now beginning to feel that obscene and indecent speech are not necessarily always protected under the First Amendment.

"OSCAR ARCHIVES" Formation Announced

To mark the 25th Anniversary of the launch of OSCAR-1, members of Project OSCAR User's Group formally announced the establishment of the OSCAR Archives. Since the concept of OSCAR was first considered, a tremendous amount of notes, photographs, records, papers and other important documents related to OSCAR have been accumulated.

Initial deposits into the archives include the data records from OSCAR-2 (from Bill Walters, W6MKE), the OSCAR-8 command module used by Bud Schultz, W6CG (donated by AMSAT-NA), records of OSCAR-1 from Chuck Townes, K6LFH and numerous historical slides from Norm Chalfin, K6PGX. Storage containers for the volumes of data and photographs are in the process of being constructed.

Negotiations are underway with Foothill College for a secure location to place the entire OSCAR archive collection. The decision to contact Foothill College is the result of their continuous support for OSCAR which dates back to the early days of the program. Dr. Robert Southwick, W6JZU, an original member of the Foothill Board of Trustees (and the current Board president) has always provided OSCAR his positive support.

Contact: Ross W. Forbes/WB6GFJ, Director of User Services/Project OSCAR at (415) 948-5000 (9AM-9PM PST) for further information. (PO Box 1, Los Altos, CA 94023).

Consumer Radio Service Update

The December issue of Personal Radio Exchange, the monthly newsletter of the Ann Arbor, Michigan, based Personal Radio Steering Group, says that the FCC seems to be backing off its Consumer Radio proposal.

Docket 86-38 proposed to dismantle the General Mobile Radio Service (GMRS) and replace it with an unlicensed low-power hand-held Consumer Radio Service. It met with instant (and highly organized) opposition from GMRS users who frequent the old 8-paired channel Class A UHF-FM Citizens Radio Service.

PRSG thinks that the FCC now might propose a modified version or abandon the Consumer Radio Service concept entirely. Action is expected by the FCC within 90 days. Another possibility is that the FCC, through "Novice Enhancement", might open up the Amateur Radio Service to wider public utilization.

Northeast Ohio Packet Voice Net Notes fm January 21, 87 de Steve N8GNJ Net Control

Jerry K8YUW talked about the packet station at the Cleveland National Weather Service office. The station consists of a Teletype Model 43 connected to a Kantronics KPC-2 TNC. The callsign on the TNC is K8YUW. If you have traffic for the NWS, connect with K8YUW and you will get a message that a printer is online, and will record your traffic. If the situation is not urgent, such as a tornado watch, pause for a moment and see if Jerry is nearby; if he is he'll probably come back to you.

K8BLB wanted to know if anyone else is using packet with a VIC 20. N8FIL responded that there should be no problem using an MFJ TNC, because the MFJ TNCs have a TTL level serial port compatible with the Commodore computers. All that should be necessary would be a terminal program for the VIC 20. KB8B responded that it was difficult to use the VIC 20 as a terminal because of the large characters that a VIC 20 generates on the screen (only 22/line).

Dave W8MDL wanted to clarify that the Model 43 at the NWS could accept an 80 character line of text, unlike the old Model 33 Teletypes. The Model 43 is a very good, reliable printing terminal; it was the first generation of electronic systems, as opposed to the mechanical beasts. The Model 43 can accept 132 columns of text, and will wrap around, so transmit whatever you want.

Tom KB8CI announced that the Northeast Ohio Packet Users Group (NEOPUG) will be sponsoring a Packet Radio demonstration at the Scout-A-Rama at Parmatown Mall on Saturday, February 21, 1987, from 8 A.M. to 5 P.M. If you are available to operate, or can provide equipment, or can be available to provide demonstration contacts, please contact Tom on the KB8CI PBBS on 145.01 or at 671-7199. Volunteers are needed for this very worthwhile demonstration; this is an excellent chance to recruit some new hams. Tom also mentioned that he has still not received a report from the meeting of the Ohio Packet Council meeting in Cincinnati on January 10.

Tom also announced that some files that I had given to him about the December NEOPUG meeting, information for beginners on Packet, and a list of files on the Pac-Comm landline BBS were posted on the W8GRG PBBS on 145.05.

Ray KA8ZEZ inquired as to the baud rate used on Packet. The standard VHF baud rate is 1200 baud; the standard HF baud rate is 300 baud. Kantronics has some TNC's that run 2400 baud, but at that rate are totally incompatible with 1200 baud TNC's, PBBS's, and digipeaters. Work is proceeding with the 9600 baud modems for use in the upcoming TAPR Network Node Controller. The standard baud rates for VHF and HF are somewhat deceiving, in that the effective baud rate depends on how heavily loaded the channel is; if the channel is busy and your packets or acks are getting clobbered, your effective baud rate is much lower.

Jerry K8YUW mentioned that there are two landline BBS's in this area that hams might be interested in. The KB1PJ RBBS (844-7732) is in operation from 6 P.M. to 7 A.M. weekdays and 24 hours on weekends. The AT&T Users Group RBBS (642-1630) also has many hams on it. Be sure to check out Jerry's calendar of upcoming Ham Radio events in the logon bulletins. Both boards support 1200 and 300 baud operation.

Tim Hitesman NR8T is trying to sell an AEA PK64 (PAKRATT) for a friend. For those that don't know, the PK64 is a 5 mode (Amtr, RTTY, Morse, Ascii, and Packet) accessory designed for the Commodore 64. Tim didn't know how much his friend wanted for it. You can contact Tim at 871-3055.

I made an announcement that notes from these nets and notes from the NEOPUG meetings, as well as short articles that I write appear in the North Coast Amateur Radio Club's newsletter "North Coast Communicator", the area PBBS's, and the ham related landline BBS's in the area.

The next Northeast Ohio Packet Users Group meeting will be at the Cuyahoga Savings Bank, 21945 Chagrin Blvd. in Beachwood. The bank is located approx. 2 miles West of I-271 on the North side of Chagrin. The meeting will be held on Saturday February 14, beginning at 10:00 A.M. NEOPUG meetings are typically held on the second Saturday of each month, always at the Bank.

(Continued)

Northeast Ohio Packet Voice Net Notes fm January 21, 87 (Continued)

There were 27 checkins to the net, and the net lasted approximately 50 minutes.

The Northeast Ohio Packet Radio Voice Net meets every Wednesday evening at 7:30 P.M. on the 146.82 (CARS) repeater. The net is open to all Amateur Radio operators; questions, comments, and announcements are strongly encouraged. Information is passed regarding the general state of Packet Radio in the Northeast Ohio area including new digipeaters, comments and questions about the PBBS', and announcements of general interest to the Northeast Ohio Packet Radio community. The general philosophy of the net is that the only stupid question is the one that doesn't get asked.

HR ARRL BULLETIN NR 13 Fm ARRL Headquarters Newington CT - February 10, 1987

Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

FCC today released the Report and Order in PR Docket 86 161, Novice Enhancement. The rules become effective 0001 UTC March 21, 1987, a Friday night, local time. Specific rules changes are: 1. Novices and Technicians may operate 28.1 through 28.5 MHz, using CW and Digital modes from 28.1 to 28.3 and CW, Digital and Voice modes from 28.3 to 28.5 MHz. Novice and Technician Control Operators are limited to 200 Watts output in this band, but other licensees are not similarly limited. 2. Novices may use up to 25 watts in the 222.10 through 223.91 MHz band, with all authorized emissions. 3. Novices may use up to 5 watts in the 1270 through 1295 MHz band, with all authorized emissions. 4. No amateur station at which the control operator or station licensee holds a Novice class operator license shall be in repeater, auxiliary, or beacon operation. 5. Two examiners will be required to administer future Novice exams, which shall consist of 30 questions. FCC form 610 will be revised to provide for certification by two VEs. 6. Present Novice and Technician licensees are grandfathered into the new privileges. 7. Element 3 is divided into two parts, 3A and 3B, with each examination to consist of 25 questions. Present Technician licensees will be given credit for having passed both elements. In the future, upgrades to Technician will only have to pass Element 3A and future Technicians upgrading to General will have to pass both Elements 1B, 13 WPM, and Element 3B. The complete text of the new rules will appear in April QST AR

HR PROPAGATION FORECAST BULLETIN NR 6 ARRL HQ Newington CT - February 9, 1987

Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

If you favor 7 MHz and lower frequencies, this has been a fine winter, so far. At no time has solar activity been high enough to degrade the DX picture on these bands. To the disappointment of anyone interested mainly in the higher frequencies, the new year has not maintained the pace set last October and early November. But the news is not all bad. The solar flux has dropped below 70 only once since late September. It slipped to 69 on February 5, the only day that low since the long summer calm, when the flux was in the 60s much of the time for four months.

So far in February the flux average has been only 70.7, but positions of the sun responsible for the best figures in January are coming into view this week and next. A rising trend that began February 6 is expected to continue for several days, and possibly carry beyond the middle of the month. A mild geomagnetic disturbance peaking over the past weekend should be followed by improved propagation and slightly higher maximum usable frequencies later this week.

The propagation charts in February QST offer encouragement to users of the frequencies above 20 MHz, especially for transequatorial circuits, and even a chance that 28 will work at peak times. The timing in these charts is likely to be accurate, as it is principally a matter of where the sun is with respect to a given path. The actual MUF depends on several factors. The earth's magnetic field is important for circuits that traverse the high latitudes. Geomagnetic disturbances have little effect on low latitude propagation, and may even enhance the transequatorial picture, but any path that enters the auroral regions is endangered when the WWV K index is above three. Since that information is changed every three hours, the WWV Bulletins are very helpful. Interpretation of them is discussed in detail in all recent editions of the ARRL Handbook, and in the 14th and 15th editions of the ARRL Antenna Book, Chapter 1 AR

SATELLITE INFORMATION Keplerian Elements - fm HAMNET via KB1PJ BBS

Satellite: OSCAR-9

Int'l Object Number: 12888
NASA Designation: 1981-100B
Epoch Time, T0: 87018.45589138
Sun Jan 18, 1987 10:56 UTC
Epoch Rev, K0: 29385
Mean Anomaly, M0: 313.5679 deg
Mean Motion, N0: 15.29145491 rev/day
Inclination, I0: 97.6513 deg
Eccentricity, E0: 0.0003598
Arg Perigee, W0: 46.5862 deg
RAAN, O0: 31.4677 deg
Period: 94.1702414 min/rev
Increment: 23.5425603 deg/rev
Beacon, F1: 145.8250 MHz
Decay, N1: 1.186E-05 rev/day²
Element Set: 988

Satellite: OSCAR-10

Int'l Object Number: 14129
NASA Designation: 1983-058B
Epoch Time, T0: 87011.48835928
Sun Jan 11, 1987 11:43 UTC
Epoch Rev, K0: 3023
Mean Anomaly, M0: 194.0734 deg
Mean Motion, N0: 2.05877176 rev/day
Inclination, I0: 27.0680 deg
Eccentricity, E0: 0.6031300
Arg Perigee, W0: 175.9734 deg
RAAN, O0: 40.5605 deg
Period: 699.446159 min/rev
Increment: 174.86154 deg/rev
Beacon, F1: 145.8100 MHz
Decay, N1: -3.0E-07 rev/day²
Element Set: 285

Satellite: OSCAR-11

Int'l Object Number: 14781
NASA Designation: 1984-021B
Epoch Time, T0: 87008.62897954
Thu Jan 8, 1987 15:05 UTC
Epoch Rev, K0: 15238
Mean Anomaly, M0: 121.2296 deg
Mean Motion, N0: 14.62098467 rev/day
Inclination, I0: 98.1250 deg
Eccentricity, E0: 0.0012231
Arg Perigee, W0: 238.7716 deg
RAAN, O0: 77.4290 deg
Period: 98.4885788 min/rev
Increment: 24.6221447 deg/rev
Beacon, F1: 145.8260 MHz
Decay, N1: 8.4E-07 rev/day²
Element Set: 197

Satellite: OSCAR-12

Int'l Object Number: 16909
NASA Designation: 1986-061B
Epoch Time, T0: 87007.45230995
Wed Jan 7, 1987 10:51 UTC
Epoch Rev, K0: 1837
Mean Anomaly, M0: 124.6943 deg
Mean Motion, N0: 12.44393694 rev/day
Inclination, I0: 50.0191 deg
Eccentricity, E0: 0.0011078
Arg Perigee, W0: 235.2837 deg
RAAN, O0: 159.4253 deg
Period: 115.719005 min/rev
Increment: 28.9297512 deg/rev
Beacon, F1: 435.795 MHz
Decay, N1: -2.5E-07 rev/day²
Element Set: 27

Satellite: RS-5

Int'l Object Number: 12999
NASA Designation: 1981-120C
Epoch Time, T0: 87019.00398194
Mon Jan 19, 1987 0:05 UTC
Epoch Rev, K0: 22386
Mean Anomaly, M0: 25.4819 deg
Mean Motion, N0: 12.05056191 rev/day
Inclination, I0: 82.9581 deg
Eccentricity, E0: 0.0009993
Arg Perigee, W0: 334.5712 deg
RAAN, O0: 349.3628 deg
Period: 119.496502 min/rev
Increment: 29.8741256 deg/rev
Beacon, F1: 29.450 MHz
Decay, N1: 1.2E-07 rev/day²
Element Set: 380

Satellite: RS-7

Int'l Object Number: 13001
NASA Designation: 1981-120E
Epoch Time, T0: 87012.01172712
Mon Jan 12, 1987 0:16 UTC
Epoch Rev, K0: 22369
Mean Anomaly, M0: 107.2764 deg
Mean Motion, N0: 12.08701277 rev/day
Inclination, I0: 82.9609 deg
Eccentricity, E0: 0.0020907
Arg Perigee, W0: 252.6026 deg
RAAN, O0: 345.9807 deg
Period: 119.136136 min/rev
Increment: 29.7840341 deg/rev
Beacon, F1: 29.500 MHz
Decay, N1: 1.3E-07 rev/day²
Element Set: 297

(Continued)

SATELLITE INFORMATION Keplerian Elements - fm HAMNET via KB1PJ BBS (Continued)

Satellite: RS-8

Int'l Object Number: 12998
NASA Designation: 1981-120B
Epoch Time, T0: 87015.01843413
Thu Jan 15, 1987 0:26 UTC
Epoch Rev, K0: 22299
Mean Anomaly, M0: 330.0123 deg
Mean Motion, N0: 12.02960062 rev/day
Inclination, I0: 82.9559 deg
Eccentricity, E0: 0.0020239
Arg Perigee, W0: 30.2116 deg
RAAN, O0: 355.4841 deg
Period: 119.704722 min/rev
Increment: 29.9261806 deg/rev
Beacon, F1: 29.500 MHz
Decay, N1: 1.2E-07 rev/day²
Element Set: 425

Satellite: NOAA-6

Int'l Object Number: 11416
NASA Designation: 1979-057A
Epoch Time, T0: 87017.20695245
Sat Jan 17, 1987 4:58 UTC
Epoch Rev, K0: 39227
Mean Anomaly, M0: 194.8982 deg
Mean Motion, N0: 14.24976802 rev/day
Inclination, I0: 98.4969 deg
Eccentricity, E0: 0.0011835
Arg Perigee, W0: 165.2546 deg
RAAN, O0: 30.8891 deg
Period: 101.054277 min/rev
Increment: 25.2635692 deg/rev
Beacon, F1: 137.50 MHz
Decay, N1: 7.9E-07 rev/day²
Element Set: 606

Satellite: NOAA-9

Int'l Object Number: 15427
NASA Designation: 1984-123A
Epoch Time, T0: 87013.92162357
Tue Jan 13, 1987 22:07 UTC
Epoch Rev, K0: 10755
Mean Anomaly, M0: 76.3850 deg
Mean Motion, N0: 14.11470962 rev/day
Inclination, I0: 99.0284 deg
Eccentricity, E0: 0.0015073
Arg Perigee, W0: 283.5642 deg
RAAN, O0: 338.4288 deg
Period: 102.021227 min/rev
Increment: 25.5053069 deg/rev
Beacon, F1: 137.62 MHz
Decay, N1: 8.3E-07 rev/day²
Element Set: 144

Information source:

NASA Prediction Bulletins
Goddard Spaceflight Center
Project Operations Branch
Code 513
Greenbelt, MD 20771

Transcribed by Con W5BWF

From HAMNET via KB1PJ BBS

HR ARRL BULLETIN NR 16 Fm ARRL Headquarters Newington CT - February 12, 1987
Relayed by KB8NW/OBS via BARF80 BBS - To all radio amateurs BT

On February 12, the FCC released a Notice of Proposed Rule Making, General Docket 87 14, that proposes to allocate 220 to 222 MHz on an exclusive basis to the Land Mobile Service and 222 to 225 MHz exclusively to the Amateur Service. According to the FCC, the 220 to 225 MHz band is underutilized, and that the Land Mobile Service has needs that can be met in this region of the spectrum. Therefore, the commission is proposing that the lower 2 MegaHertz, 220 to 222 MHz, be reallocated on a primary basis to the Land Mobile Service for both government and nongovernment operations and the existing primary allocations to the amateur, fixed and mobile services be deleted. Accordingly, the FCC proposes to allocate the remaining 3 MegaHertz, 222 to 225, to the Amateur Radio Service on a primary basis. Comments on this proposal may be filed with the FCC on or before April 6, 1987. Reply comments may be filed on or before April 21, 1987. See the ARRL Letter and QST for further details AR

UPCOMING EVENTS CALENDAR de Ed Milliron KA8ZRH - Have more INFO? Call 651-8191.

Feb 21-22 ARRL International DX Contest, CW, See December 87 QST.
Feb 22 Cuyahoga Falls ARC Auction/Fest located on County Road 18 East of Tallmadge, Ohio. Talk-in on 147.87/27. Tables available for \$6.00 each. If you prefer to have your old gear sold at Auction, the CFARC takes 10% if it sell. No sale - No fee. Tickets are \$3 in advance, \$4 at door. Send SASE to Bill Slovinsky K8JSL, 2305 24th St., Cuyahoga Falls, Ohio 44223.
Mar 5 NCARC Board Meeting at 6:00 PM.
Mar 5 NCARC General Meeting at 7:30 PM. SKYWARN Program.
Mar 6 LCARA Fox Hunt, 7:00 PM, Union Sand, Rt 84, Painesville, ck w/147.21 rptr.
Mar 7 147.12 Rptr ARRL VE Exam, 10 AM, Mentor Fire Station, Rt 615, Mentor.
Mar 7-8 ARRL International DX Contest, Phone, See December 87 QST.
Mar 14 NEOPUG (North East Ohio Packet Users Group) Meeting at 10:00 AM.
Mar 14 NCARC Fox Hunt, 7:00 PM, N. Olmsted, check with 145.29 repeater.
Mar 20 LCARA Fox Hunt, 7:00 PM, Union Sand, Rt 84, Painesville, ck w/147.21 rptr.
Mar 22 Lake County Hamfest, Madison High School in Madison, Ohio (8:00 AM to 3:00 PM). LCARC pre-registered ARRL VE Exams given. Check with the 147.81/21 repeater for more information on both.
Mar 25 School Tornado Drill at 1010 AM. NCARC - Cuyahoga County EAP communications. State-wide excercises with many agencies.
Mar 28-29 CQ World Wide Prefix Contest, Phone.
Apr 2 NCARC Board Meeting at 6:00 PM.
Apr 2 NCARC General Meeting at 7:30 PM.
Apr 11 NCARC ARRL VE Exam - Saturday 1 PM in North Olmsted, Ohio.
Apr 24/25/26 Dayton Hamvention 1987.
Apr 25 Columbia Station Road Race. NCARC Public Service.

LOCAL 300/1200 BAUD DDD BBS's in CLEVELAND AREA with Amateur Radio Information

BARF80 BBS (new telephone number).....call 237-8208
KB8PJ HAMNET BBS.....call 844-7732
ATT FREE NET BBS.....call 642-1630

NCARC 75 Meter SSB Net

Due to the fact that no one has come forward to volunteer as an additional Net Control, the NCARC 75 Meter SSB Net that met Wednesday evenings has been cancelled.

NCARC 10 Meter SSB Net

Ed KA8ZRH has expressed a desire to start a NCARC 10 Meter SSB Net on the new Novice segment. If you have an interest in helping Ed as alternate Net Control, or suggestions as to day and time, please contact Ed a.s.a.p. at 651-8191.

IDENTIFY YOUR STATION LEGALLY WHEN ON NETS

Part 97 of the FCC rules clearly explains that you must ID at the end of your last transmission when operating your station. Listening to many stations (who often exchange information during various nets) I notice that many stations will add one more transmission with an additional comment, or give their call only at the beginning of a long transmission, but in either case fail to ID at the end of the transmission. In many nets, stations who have done this often do not make any additional transmissions for the rest of the net (which could be hours) thereby not fullfiling the requirement to ID at the 10 minute intervals, nor for the completion of the QSO requirement.

I would like to suggest to everyone that you always ID at the end of your transmission when finished passing traffic (or info) into a net as you may not get a second chance to do so depending on the situation and with the type of net.

CALL SIGN CHANGE: Larry KA8WRZ has received his new call sign. Larry is now N8IAA.

NORTH COAST AMATEUR RADIO CLUB MAP

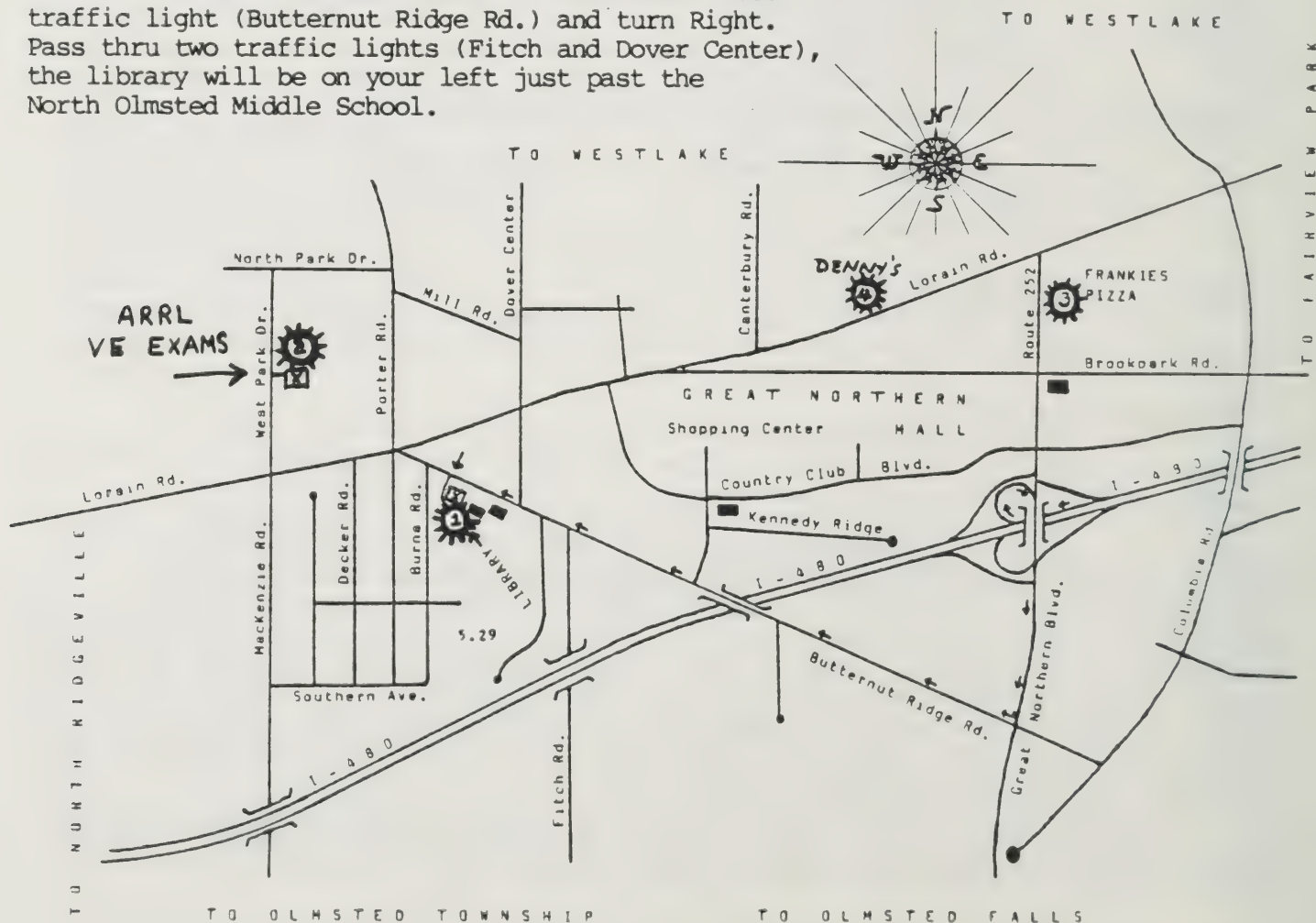
- Location 1. NCARC General meetings (1st Thursday each month at 7:30 PM.
NCARC "Fox Hunt" Hunters get ready (2nd Saturday each month) at 6:50 PM.
Cuyahoga County Public Library, 27425 Butternut Ridge Rd., North Olmsted.
- Location 2. North Coast Amateur Radio Club ARRL VE Amateur Radio Examinations.
North Olmsted Community Cabin, North Olmsted Park.
- Location 3. This is where all of the participants in NCARC Fox Hunts go after the hunt.
Frankie's Pizza, 4641 Great Northern Blvd, N. Olmsted.
- Location 4. NCARC Board meetings (generally at 6:00 PM prior to general meetings)
Denny's Restaurant, 25912 Lorain Ave., N. Olmsted.

HOW TO GET TO THE NCARC GENERAL MEETINGS FROM I-71

Take I-480 Westbound. If Southbound I-71 (from Cleveland), the exit after W.150th is Airport/I-480 Westbound (LEFT THREE LANES OF I-71). Once you are off of I-71, The right lane leads you to Westbound I-480.

If Northbound I-71 (from Strongsville), the exit after Snow Rd. serves both East and Westbound I-480 (RIGHT TWO LANES OF I-71). The left one of the two most right lanes leads you to West I-480.

You will go pass the Grayton, Clague, and Great Northern Exits. Immediately after the Great Northern Exit, get off at the ROUTE 252 SOUTH - OLMSTED FALLS exit. This will take you Southbound on Great Northern Blvd. Go to the first traffic light (Butternut Ridge Rd.) and turn Right. Pass thru two traffic lights (Fitch and Dover Center), the library will be on your left just past the North Olmsted Middle School.



February 11, 1987

North Coast Amateur Radio Club
General Membership Roster

	<u>Call</u>	<u>CL</u>	<u>Name</u>	<u>Street Address</u>	<u>City and State</u>	<u>Telephone</u>
001.	KB8A	E	Dan Sarama	15591 Rademaker Blvd.	Brook Park, OH 44142	267-5083
002.	K8AAI	G	Bob Turek	2150 W. 105th St.	Cleveland, OH 44102	- UL
003.	WB8ADV	G	Martin (Ray) Smith	16927 Chatfield Ave.	Cleveland, OH 44111	252-6151
004.	WL7AEC	G	Tom Tetzlaff	5341 Cornell Ave.	N. Ridgeville, OH 44039	1-327-6020
005.	N9AGC	A	Greg Smith	5115 Lake Rd., Apt. 1019	Sheffield Lake, OH 44054	1-949-8545
006.	KB8AII	T	Pat Lavelle	16532 St. Anthony Lane	Cleveland, OH 44111	252-0327
007.	WD8AJF	A	Dan Wadsworth	11028 Hawke Rd.	Columbia Station, OH 44028	1-748-2816
008.*	KB8AK	A	Pat Willemin	331 Courtland St.	Elyria, OH 44035	1-324-4574
009.	KB8AOL	G	Tom Donovan	2814 Commonwealth	Parma, OH 44134	843-6969 UL
010.	N8API	T	George Keco	P.O. Box 442	Brunswick, OH 44212	225-8709
011.	N8ATV	A	Jerry Jarze	1001 N. Chillicothe Rd.	Aurora, OH 44202	562-6251
012.	KB8AUH	T	Cliff Crabs	25575 Butternut Ridge Rd.	North Olmsted, OH 44070	777-4025 UL
013.	N8AUH	G	Dave Kersten	2197 McKinley Ave.	Lakewood, OH 44107	221-6740
014.	K8AZ	E	Tom Lee	7275 Surrey Lane	Chesterland, OH 44026	729-8104
015.	WA8AZO	G	Joe Trost	412 Douglas Blvd.	Richmond Hts., OH 44143	481-7683
016.*	KB8BBT	N	Mary Lou Sarama	15591 Rademaker Blvd.	Brook Park, OH 44142	267-5083
017.	W18BW	G	Shelly Shillingburg	667 Washington Ave.	Barberton, OH 44203	1-753-9314
018.*	KB8BDY	N	Nick Szabo	6142 Eavenson	Brook Park, OH 44142	- UL
019.	KB8BEB	T	Ron Deatherage	28410 Magnolia Dr.	North Olmsted, OH 44070	235-2882
020.	KA8BJA	A	Frank Stevison	32137 Dickerson Rd.	Willowick, OH 44094	944-4843
021.	W1BKZ	E	Pete Harmon	35400 Euclid Ave. #A-204	Willoughby, OH 44094	951-9360
022.	KE8BN	A	Mark Dunkel	550 Kenilworth Rd.	Bay Village, OH 44140	835-3372
023.	N8BO	E	Charlie Cook	2792 Friar Dr.	Parma, OH 44134	842-4232 UL
024.	WB8BPA	G	Don Hill	2005 Marlindale Rd.	Cleveland Hts., OH 44118	932-8050
025.	KA8BPU	G	Ray Becker	5911 Bradley Ave.	Parma, OH 44129	842-7647
026.	N8BTB	A	Steve Stevison	14106 Terminal Ave.	Cleveland, OH 44135	476-2939
027.	K8BVI	A	Art Anzic	28491 Elder Dr.	North Olmsted, OH 44070	235-4077
028.	N8BYW	G	Bud Riess	317 Sheri Ln.	Brunswick, OH 44212	225-7417
029.	AE8C	E	Sy Maruszan	4207 Kenmore Ave.	Parma, OH 44134	886-3712
030.	W8CEJ	A	Mel Hoffman	5579 Nathan Ave.	Parma, OH 44130	885-3303
031.	W8CEM	A	Chuck Perry	2833 Walter Rd.	North Olmsted, OH 44070	777-3157
032.	W8CHA	G	Steve Molnar	15721 Westdale Ave.	Cleveland, OH 44135	252-7019
033.	WD8CHL	T	Jim Barbour	5717 S. Nantucket #211	Lorain, OH 44053	1-282-3044
034.	KB8CI	A	Tom Kryza	10620 Fidelity Ave.	Cleveland, OH 44111	671-7199
035.	N8CKV	A	Paul Langendorfer	7784 Columbia Rd.	Olmsted Falls, OH 44138	235-1458
036.	KA8CKZ	A	Bill Jones	11313 Linnet Ave.	Cleveland, OH 44111	941-3850 UL
037.	N8CQD	G	Bill Maerkle	22940 Mastick Rd.	Fairview Park, OH 44126	779-7311
038.	KE8CT	A	Pete Incaini	8175 Royal Ridge Dr.	Parma, OH 44129	885-5436
039.*	WA8CTU	G	Al Trost	412 Douglas Blvd.	Richmond Hts., OH 44143	481-7683
040.	W8CWT	A	Ken Good	5103 Broadway Ave.	Lorain, OH 44052	1-233-6510
041.	N8DAD	T	Barbara Ernest	12313 Kensington Ave.	Cleveland, OH 44111	941-2271
042.	K8DBG	T	Dick W. Stuart	4498 Briarbanks Dr.	Fairview Park, OH 44126	331-8591
043.	K8DBN	E	Bill Rieke	1440 E. Melrose	Westlake, OH 44145	333-6644
044.	K8DDY	G	Bill Schreiber	6 Sunrise Blvd.	Olmsted Twp., OH 44138	235-3913
045.*	KE8DJ	A	Diane Willemin	331 Courtland St.	Elyria, OH 44035	1-324-4574
046.	N8DMK	E	Russ Pratley	12711 Broadway	Garfield Hts., OH 44125	- UL
047.	N8DPZ	T	Bob Rieke	20943 Eastwood Ave.	Fairview Park, OH 44126	331-1051
048.	K8DTS	A	Bob Leskovec	25884 Highland Rd.	Richmond Hts., OH 44143	486-5833 UL
049.	WB8DTY	A	Tommie Murray	P.O. Box 08097	Cleveland, OH 44108	486-0033
050.	KE8DX	A	Dick Foster	6817 Franke Rd.	Middleburg Hts., OH 44130	676-0165
051.	WA8DYL	G	Eugene Likes	4162 Canterbury Rd.	North Olmsted, OH 44070	734-7448 UL

052.	KB8DZ	A	Joe Noga	36171 Kinzel Rd.	Avon, OH 44011	1-934-6291
053.	N8DZO	T	Jack Zigon	P.O. Box 347001	Parma, OH 44134	351-2427
054.	W8EFW	E	Paul Cornell	1340 Ford Rd.	Lyndhurst, OH 44124	442-7024
055.	N8EIJ	G	Ken Poling	4707 Martin Dr.	North Olmsted, OH 44070	777-8785
056.	W8EPM	T	Joe Rozek	28405 North Park Dr.	North Olmsted, OH 44070	777-5574
057.	KD8EQ	A	Dick S. Stuart	26921 Elizabeth Ln.	Olmsted Twp., OH 44138	235-2323
058.	WA8ERA	T	Lee Georgia	5106 Montauk Ave.	Parma, OH 44134	888-5286 UL
059.	W8ETC	G	Len Hettinger	3087 W. 115th St.	Cleveland, OH 44111	251-5936
060.	N8ETP	T	Tom Kopcak	1497 Canterbury Rd.	Westlake, OH 44145	871-6181 UL
061.	N8ETQ	A	Dan Harlan	3418 Stanfield Dr.	Parma, OH 44134	845-5442
062.	N8ETW	G	Ernie Nagy	35892 Poplar St.	North Ridgeville, OH 44039	1-327-6849
063.	N8ETY	A	Dave Kifer	10720 Aaron Dr.	Parma, OH 44130	885-2131
064.*	N8ETZ	A	Mary Nagy	35892 Poplar St.	North Ridgeville, OH 44039	1-327-6849
065.	KA8EVS	G	Charlie Stien	4652 East 85th St.	Garfield Hts., OH 44125	- UL
066.	KD8EX	A	Tom Rudman	32651 Redwood Blvd.	Avon Lake, OH 44012	1-933-8753
067.	KC8F	E	Heinz Wimmer	26976 Fairfax Lane	North Olmsted, OH 44070	734-6890
068.	W8FAZ	E	Joe Zelle	1227 Addison Rd.	Cleveland, OH 44103	431-6437
069.	N8FCX	A	Ron Packard	4931 Wake Robin Rd.	Mentor, OH 44060	1-257-2541
070.	N8FDY	A	Tom Wilkinson	1337 Sloane Ave.	Lakewood, OH 44107	521-9519
071.	N8FEG	G	Pete Gramuglia	6380 Elmdale	Brook Park, OH 44142	676-9027
072.	N8FGR	T	Wayne Pipoly	4350 Lander Rd.	Orange Village, OH 44022	831-8003
073.	N8FIL	T	Rich James	7620 Crestwood Ln.	Northfield Center, OH 44067	467-0493 UL
074.	N8FKS	T	Don Summer	26915 Westwood Ln.	Olmsted Twp., OH 44138	235-6295
075.	N8FKT	A	Bob Bassett	P.O. Box 07128	Lakewood, OH 44107	228-3788 UL
076.*	KA8FOE	T	Pauline Wells	5955 Burns Rd.	North Olmsted, OH 44070	779-8999
077.	WA8FOV	G	Ted Ermi	25895 John Rd.	Olmsted Twp., OH 44138	235-2698
078.	N8FQQ	T	Tom Adams	11400 Linnet Ave.	Cleveland, OH 44111	251-3080
079.	N8GJR	A	Jim Nestor	39114 Route 303	Grafton, OH 44044	1-355-8697
080.	W8GNB	G	Ed Ehrbar	4307 W. 137 St.	Cleveland, OH 44135	251-8234
081.	N8GNJ	T	Steve Stroh	917 Salem Ave.	Elyria, OH 44035	1-365-2793
082.	N8GNL	T	John Jailer	5685 Hickory Trail	North Ridgeville, OH 44039	1-327-7088
083.*	HR3GS	I	Gladis Shillingburg	667 Washington Ave.	Barberton, OH 44203	1-753-9314
084.	WA8GZC	T	Marion Hill	8384 Barton Dr.	Strongsville, OH 44136	238-1152
085.	N8HAD	T	Skip Hockensmith	6229 Elmdale	Brook Park, OH 44142	267-9374
086.	N8HHE	T	Rob Szule	6032 Porter Rd.	North Olmsted, OH 44070	734-5963
087.	N8HOB	G	Paul Hoegstrom	5962 S. Park Blvd.	Parma, OH 44134	884-8398
088.*	N8HPV	T	Elizabeth Nagy	35892 Poplar St.	North Ridgeville, OH 44039	1-327-6849
089.*	N8HSE	T	Nan Kersten	2197 McKinley Ave.	Lakewood, OH 44107	221-6740
090.*	N8HTX	T	Monica James	7620 Crestwood Ln.	Northfield Center, OH 44067	467-0493 UL
091.	N8HUR	T	Carl Beduhn	14411 Tabor Ave.	Maple Heights, OH 44137	663-8376 UL
092.	N8HVQ	T	Jack Andrisin	7730 Flegler Dr.	Parma, OH 44134	845-0068
093.	N8HWK	T	Larry Galt	364 Wallace Dr.	Berea, OH 44017	243-2677
094.	N8HWP	T	Evelyn Godwin	882 Oelley Dr.	Cleveland, OH 44109	351-2463
095.	N8IAA	T	Larry E. Tews	3341 W. 131 St.	Cleveland, OH 44111	476-8164
096.	W3IGI	T	Bill Spring	389 Brantley Ln.	Brunswick, OH 44212	273-5723
097.	W7IJ	E	Bill Rohrer	2235 Elmwood Dr.	Westlake, OH 44145	892-9472
098.	KA8IMU	A	Tony Romano	4837 E. 84th St.	Garfield Hts., OH 44125	271-6954
099.	WA8IMO	A	Bob Sull	230 Moore Rd.	Avon Lake, OH 44012	1-933-4582
100.	WD8INK	G	Ken Wiggenhorn	2134 Brown Rd.	Lakewood, OH 44107	221-9954
101.	WD8INO	G	Steve Ferraro Jr.	3417 Marmore Ave.	Parma, OH 44134	741-2547
102.	W8IO	E	Robert Allen	23305 Westchester Dr.	North Olmsted, OH 44070	734-0570
103.	WD8IQO	T	Milt Kujawinski	4235 W. 50th St.	Cleveland, OH 44144	749-5519
104.	WD8IRG	A	Van Winkle	16417 Shelby Dr.	Brook Park, OH 44142	267-9063
105.	WD8ISB	E	Dick Dell	8085 Wren Dr.	Macedonia, OH 44056	467-7733 UL
106.	KROJ	E	Jeff Vecbastiks	3289 W. 41 St.	Cleveland, OH 44109	631-6087 UL
107.	N6JAM	T	Ron Lew	512 Irebisky Rd.	Richmond Hts., OH 44143	486-7927

108.	WD8JMM	G	Alex Manuk			
109.	KD8JQ	E	Don Jason	715 Twin Oaks Blvd.	Medina, OH 44256	1-723-5492
110.	W8KBV	G	Joe Young	2218 E. 93rd St.	Cleveland, OH 44106	721-6397 UL
111.	W8KGA	G	Larry J. Stacik	12503 Carrington Ave.	Cleveland, OH 44135	941-4711
112.	WD8KHU	T	Mark Woodworth	20239 Bonnie Bank Blvd.	Rocky River, OH 44116	331-6347
113.	KC8KI	A	John Baddour	2801 Clague Rd.	North Olmsted, OH 44070	734-3778
114.*	WD8KTC	T	Marie Johnson	6504 Edgehurst Dr.	Brook Park, OH 44142	676-5342
115.	KA8LIH	T	Karen Counter	22420 Morton Ave. Apt #4	Fairview Park, OH 44126	777-0670
116.	N8LL	E	Jim Schwabe	3050 Farnham Rd.	Richfield, OH 44286	1-659-9841
117.	WD8LRZ	G	Larry Lanning	3528 Monte Vista Dr.	Brunswick, OH 44212	225-4607
118.	AI8M	E	Dave Willemin	331 Courtland St.	Elyria, OH 44035	1-324-4574
119.	KV8M	E	Tom Kapsar	15517 Prospect Rd.	Strongsville, OH 44136	238-6150
120.	NO8M	E	Steve Wolf	27132 Butternut Ridge Rd.	North Olmsted, OH 44070	777-1177
121.	K8MBZ	A	Dave Jones	7630 Main St.	Olmsted Falls, OH 44138	235-3269
122.	K8MDC	T	Fred Jones	8174 Olmway Ave.	Olmsted Falls, OH 44138	235-3260
123.	K8MGH	G	Lou Pierce	6344 Ridgeview Blvd.	N. Ridgeville, OH 44039	1-327-2206
124.	WD8MHL	G	Ray G. Maskow	10401 Linnet Ave.	Cleveland, OH 44111	671-0317
125.	WD8MHR	A	Eric Benedict	12470 Albion Rd.	N. Royalton, OH 44133	237-8720
126.	K8MO	E	Jeff Safran	17781 Walnut Dr.	Strongsville, OH 44136	572-3509 UL
127.	W8MW	E	Maynard Weston	4564 Park Edge Dr.	Fairview Park, OH 44126	734-4260
128.	WB8NAQ	A	Bill Reed	3334 Brookdale Ave.	Parma, OH 44134	741-7071 UL
129.	WA8NXT	G	Ferd Nye Jr.	31497 Hilliard Blvd.	Westlake, OH 44145	871-8098
130.	WB8NXT	A	Neil Johnson	6504 Edgehurst Dr.	Brook Park, OH 44142	676-5342
131.	NQ8O	E	Tom Tillack	2603 Oakdale Ave.	Lorain, OH 44055	1-244-5647
132.	WD8OCI	T	Bob Bentley	4800 Henry St. Apt. #103	Garfield Hts., OH 44125	581-7303 UL
133.	WD8OMW	A	Glenn Christman	1295 Summit Ave.	Lakewood, OH 44107	221-6538
134.	K8OPV	T	George Hodapp	13101 Yager Dr.	Strongsville, OH 44136	238-7663
135.	N4OSD	T	Chuck Sommer	4560 Park Edge Dr.	Fairview Park, OH 44126	734-9696
136.	WD8OYO	A	Dave Ernest	4223 Columbia Rd.	North Olmsted, OH 44070	777-3694
137.	WD8PAQ	A	Bob Gromen	17800 Marks Rd.	Columbia Sta., OH 44028	238-0977
138.	KA8PEF	G	Joe Liszeski	8233 Avon Belden Rd.	N. Ridgeville, OH 44039	1-327-7938 UL
139.	W8PEV	G	Jim Malone	31235 Avon Rd.	Westlake, OH 44145	835-1206 UL
140.	WA8PJK	G	Paul Kohanski	1146 E. 76th St.	Cleveland, OH 44103-2004	391-0241
141.	K8PPZ	A	Tom Wisnor	27869 Sherwood Dr.	Westlake, OH, OH 44145	835-2288
142.	W8PSX	G	Jim Mackner	P O Box 341	Avon Lake, OH 44012	-
143.	WD8QAC	A	Al Dalglish	26919 Westwood Ln.	Olmsted Falls, OH 44138	235-3771
144.	K8QNK	A	Dick Scheuering	4867 Summerlane	Brooklyn, OH 44144	741-7121
145.	KA8QOQ	G	Larry Kominek	20349 Marian Ln.	Rocky River, OH 44116	333-9943
146.	K8RBV	A	Bob Morgan	376 East 329th St.	Willowick, OH 44094	943-6374
147.	WD8RBX	E	Zen Bartosik	6305 Meadowbrook Ave.	Cleveland, OH 44144	398-7542 UL
148.	WB8RGK	G	Tim O'Reilly	5515 Thornton Dr.	Parma, OH 44129	888-5618
149.*	KA8RKI	N	Tami Adams	11400 Linnet Ave.	Cleveland, OH 44111	251-3080
150.	K8RSH	A	Chuck Early	5943 Burns Rd.	North Olmsted, OH 44070	777-1595
151.	K8RWR	T	John Pearl Jr.	5709 Northcliff Ave.	Cleveland, OH 44144	749-0759
152.	K8RZP	G	John Pastor	322 Berea St.	Berea, OH 44017	234-4299
153.	K8SCI	A	Rick Wells	5955 Burns Rd.	North Olmsted, OH 44070	779-8999
154.	WD8SDP	T	Lin Shaw	7780 Lewis Rd.	Olmsted Falls, OH 44138	235-3912
155.*	KA8SLX	T	Chris Tetzlaff	5341 Cornell Ave.	N. Ridgeville, OH 44039	1-327-6020
156.	WA8SNI	G	Charlie Kontras	13709 Wainstead Ave.	Cleveland, OH 44111	252-2367
157.*	KA8SNM	T	Cheri Collins	35400 Euclid Ave. #A-204	Willoughby, OH 44094	951-9360
158.	K9SSL	E	Mike Walker	1204 Tulip Ct.	Brunswick, OH 44212	225-1744 UL
159.	KA8SYT	T	John Sopko	2100 Hancock St.	Lorain, OH 44052	1-288-0390 UL
160.	NR8T	E	Tim Hitesman	356 Bradley Rd.	Bay Village, OH 44140	871-3055 UL
161.*	KA8THY	N	Edna Lorenz	P O Box 147	Clinton, OH 44216	1-882-3315
162.*	K8TKQ	T	Howard Wells	5955 Burns Rd.	North Olmsted, OH 44070	779-8999
163.	WA8TMK	E	Fred Helwig Jr.	26045 Akins Rd.	Columbia Sta., OH 44028	236-3477

164.	KA8TQR	G	Dennis Minnick	1700 Brookdale Ave.	Parma, OH 44134	749-2365
165.	KB8TT	A	Dave Curry	887 E. 331st St.	Eastlake, OH 44094	942-5030 UL
166.	K8TTZ	G	Bob Mills	6716 Bonna Ave.	Cleveland, OH 44103	431-9492
167.	WB8UDA	A	Fred S. Szabo	6142 Eavenson	Brook Park, OH 44142	- UL
168.	KA8UFN	T	Ollie Bell-Bey	13513 Cranwood Park Blvd.	Garfield Hts., OH 44125-1822	475-7886
169.	K8UHX	A	J D Csicsila	146 River Rd.	Hinckley, OH 44233	278-7904
170.	K8UID	G	Ron Diehl	40171 Jones Rd.	Wellington, OH 44090	1-647-3664
171.	W8UNB	E	Mel Nelson	23576 David Dr. #2	North Olmsted, OH 44070	734-3723
172.	WB8UPA	A	Russ Saepic	1861 Frost Circle	Brunswick, OH 44212	- UL
173.	K8UTE	T	Basil L. Andrejko	19307 Maplewood St.	Cleveland, OH 44135	267-3433
174.	WB8UWK	G	Steve Butler	29041 Norman Ave.	Wickliffe, OH 44092	944-2577
175.	WA8VDG	E	Bill Berndsen	24213 Gessner Rd.	North Olmsted, OH 44070	779-0504 UL
176.	KA8VDU	T	Al Prinz	1743 Lares Lane	Brunswick, OH 44212	273-1914
177.	K8VJG	A	Ron Borkey Sr.	10699 Ridge Rd.	North Royalton, OH 44133	237-6718
178.	KA8VYN	G	Steve Elder	18317 Walnut Dr.	Strongsville, OH 44136	238-9319
179.	KA8WAR	T	Joe Kluha	12954 Sprague Rd.	Parma, OH 44130	888-4617
180.	KA8WCK	G	Roy Glassco	4503 Azalea Lane	North Olmsted, OH 44070	779-1262
181.	KA8WHK	T	Ralph Scott	5965 Olive St.	North Ridgeville, OH 44039	1-327-0037 UL
182.	KA8WJH	A	Joe Walker	3116 Becket Rd.	Cleveland, OH 44120	491-8040
183.	K8WNE	G	George Vivian	25190 Deerfield Dr.	North Olmsted, OH 44070	777-6039
184.	W8WXR	A	Roger Burgess	441 Bradley Rd.	Bay Village, OH 44140	835-8739
185.	AE8X	E	Jim Hartland	6506 Gilbert Ave.	Parma, OH 44129	842-4137
186.	AJ8Y	E	Dennis Chaney	27697 Bryandale	Westlake, OH 44145	871-4685
187.	AK8Y	E	Mike Cauley	1462 S. Carpenter Apt 160	Brunswick, OH 44212	225-7438
188.	KA8Y	E	Shirley Lantz	12745 Vincent Dr.	Mantua, OH 44255	562-5858
189.	KW9Y	E	Don Hilderman	596 Canterbury Rd.	Bay Village, OH 44140	871-6024
190.*	KA8YEA	N	Eileen Neubeck	3289 W. 41 St.	Cleveland, OH 44109	631-6087 UL
191.*	KD8YM	A	Mike Willemin	331 Courtland St.	Elyria, OH 44035	1-324-4574
192.	WB8YNX	A	Clyde Lorenz	P O Box 147	Clinton, OH 44216	1-882-3315
193.	NB8Z	E	Larry Ferrone	2531 Canterbury Rd.	Westlake, OH 44145	835-9428
194.	KB8ZA	A	Jim Baird	3110 Klusner Ave.	Parma, OH 44134	843-2442
195.*	KA8ZEP	T	Ann Wadsworth	11028 Hawke Rd.	Columbia Station, OH 44028	1-748-2816
196.	KD8ZK	A	Ed Zorn	4878 Autumn Ln.	Brooklyn, OH 44144	741-9174
197.	KA8ZRF	T	Jack Nilsson	26101 Country Club #1007	North Olmsted, OH 44070	734-6046
198.	KA8ZRG	T	David Hoffmann	30015 Sequoia Trail	Westlake, OH 44145	835-8275
199.	KA8ZRH	G	Edward Milliron	4009 Carlyle Ave.	Cleveland, OH 44109	651-8191 UL
200.	KA8ZTY	T	George Rybicki	10791 Creek Moss Ln.	Strongsville, OH 44136	238-0121
201.	KA8TZ	G	Cody Williams	9976 Fairtree Dr.	Strongsville, OH 44136	238-6034
202.*	KA8ZUA	N	Kathy Hitesman	356 Bradley Rd.	Bay Village, OH 44140	871-3055 UL
203.	KA8ZUB	N	Paula Noaker	115 S. Rocky River Dr #603	Berea, OH 44017	826-3739 UL
204.*	KA8ZUC	N	Diane Nilsson	26101 Country Club #1007	North Olmsted, OH 44070	734-6046
205.	WB8ZUR	G	John Hamley	4845 Columbia Rd. #102	North Olmsted, OH 44070	779-6428
206.*	KA8ZVK	N	Merilee Nestor	39114 Route 303	Grafton, OH 44044	1-355-8697
207.	KA8ZVU	T	Terry Holstein	8422 Lorraine Dr.	Strongsville, OH 44136	238-0999
208.*	KA8ZVV	N	Mary Wolf	27132 Butternut Ridge Rd.	North Olmsted, OH 44070	777-1177
209.*	KA8ZVW	N	Gene Wells	5955 Burns Rd.	North Olmsted, OH 44070	779-8999
210.*	KA8ZVX	N	Jason Hitesman	356 Bradley Rd.	Bay Village, OH 44140	871-3055 UL
211.*	-		Tina Stroh	917 Salem Ave.	Elyria, OH 44035	1-365-2793
212.*	-		Tim Sull	230 Moore Rd.	Avon Lake, OH 44012	1-933-4582
213.*	-		Pennie Wells	5955 Burns Rd.	North Olmsted, OH 44070	779-8999

* Denotes Family Member

NOTE: For changes or corrections, please contact Rick K8SCI or Pauline KA8FOE at 779-8999, thank you.

North Coast Amateur Radio Club - MINI ROSTER - February 10, 1987

CALL	NAME	CALL	NAME	CALL	NAME	CALL	NAME
KB8-A	DAN	N8-EIJ	KEN	WD8-JMM	AL	KA8-THY	EDNA
K8-AAI	BOB	W8-EPM	JOE	KD8-JQ	DON	K8-TKQ	HOWARD
W8-ADV	RAY	KD8-EQ	DICK	W8-KBV	JOE	WA8-TMK	FRED
WL7-AEC	TOM	WA8-ERA	LEE	W8-KGA	LARRY	KA8-TQR	DENNIS
N9-AGC	GREG	W8-ETC	LEN	WD8-KHU	MARK	KB8-TT	DAVE
KB8-AII	PAT	N8-ETP	TOM	KC8-KI	JOHN	K8-TTZ	BOB
WD8-AJF	DAN	N8-ETQ	DAN	WD8-KTC	MARIE	WB8-UDA	FRED
KB8-AK	PAT	N8-ETW	ERNIE	KA8-LIH	KAREN	KA8-UFN	OLLIE
KB8-AOL	TOM	N8-ETY	DAVE	N8-LL	JIM	K8-UHX	J D
N8-API	GEORGE	N8-ETZ	MARY	WD8-LRZ	LARRY	K8-UID	RON
N8-ATV	JERRY	KA8-EVS	CHARLIE	AI8-M	DAVE	W8-UNB	MEL
KB8-AUH	CLIFF	KD8-EX	TOM	KV8-M	TOM	WB8-UPA	RUSS
N8-AUH	DAVE	KC8-F	HEINZ	NO8-M	STEVE	K8-UTE	BASIL
K8-AZ	TOM	W8-FAZ	JOE	K8-MBZ	DAVE	WB8-UWK	STEVE
WA8-AZO	JOE	N8-FCX	RON	K8-MDC	FRED	WA8-VDG	BILL
KB8-BBT	MARY LOU	N8-FDY	TOM	K8-MGH	LOU	KA8-VDU	AL
W1-BBW	SHELLY	N8-FEG	PETE	WD8-MHL	RAY	K8-VJG	RON
KB8-BDY	NICK	N8-FGR	WAYNE	WD8-MHR	ERIC	KA8-VYN	STEVE
KB8-BEB	RON	N8-FIL	RICH	K8-MO	JEFF	KA8-WAR	JOE
KA8-BJA	FRANK	N8-FKS	DON	W8-MW	MAYNARD	KA8-WCK	ROY
W1-BKZ	PETE	N8-FKT	BOB	WB8-NAQ	BILL	KA8-WHK	RALPH
KE8-BN	MARK	KA8-FOE	PAULINE	WA8-NXT	FERD	KA8-WJH	JOE
N8-BO	CHARLIE	WA8-FOV	TED	WB8-NXT	NEIL	K8-WNE	GEORGE
WB8-BPA	DON	N8-FQQ	TOM	NQ8-O	TOM	W8-WXR	ROGER
KA8-BPU	RAY	N8-GJR	JIM	WD8-OCI	BOB	AE8-X	JIM
N8-BTB	STEVE	W8-GNB	EDDIE	WD8-OMW	GLENN	AJ8-Y	DENNIS
K8-BVI	ART	N8-GNJ	STEVE	K8-OPV	GEORGE	AK8-Y	MIKE
N8-BYW	BUD	N8-GNL	JOHN	N4-OSD	CHUCK	KA8-Y	SHIRLEY
AE8-C	SY	HR3-GS	GLADIS	WD8-OYO	DAVE	KW9-Y	DON
W8-CEJ	MEL	WA8-GZC	MARION	WD8-PAQ	BOB	KA8-YEA	EILEEN
W8-CEM	CHUCK	N8-HAD	SKIP	KA8-PEF	JOE	KD8-YM	MIKE
W8-CHA	STEVE	N8-HHE	ROB	W8-PEV	JIM	WB8-YNX	CLYDE
WD8-CHL	JIM	N8-HOB	PAUL	WA8-PJK	PAUL	NB8-Z	LARRY
KB8-CI	TOM	N8-HPV	ELIZABETH	K8-PPZ	TOM	KB8-ZA	JIM
N8-CKV	PAUL	N8-HSE	NAN	W8-PSX	JIM	KA8-ZEP	ANN
KA8-CKZ	BILL	N8-HTX	MONICA	WD8-QAC	AL	KD8-ZK	ED
N8-CQD	BILL	N8-HUR	CARL	K8-QNK	DICK	KA8-ZRF	JACK
KE8-CT	PETE	N8-HVQ	JACK	KA8-QOQ	LARRY	KA8-ZRG	DAVE
WA8-CTU	AL	N8-HWK	LARRY	K8-RBV	BOB	KA8-ZRH	ED
W8-CWT	KEN	N8-HWP	EVELYN	WD8-RBX	ZEN	KA8-ZTY	GEORGE
N8-DAD	BARB	N8-IAA	LARRY	WB8-RGK	TIM	KA8-ZTZ	CODY
K8-DBG	DICK	W3-IGI	BILL	KA8-RKI	TAMI	KA8-ZUA	KATHY
K8-DBN	BILL	W7-IJ	BILL	K8-RSH	CHUCK	KA8-ZUB	PAULA
K8-DDY	BILL	WA8-IMO	BOB	K8-RWR	JOHN	KA8-ZUC	DIANE
KE8-DJ	DIANE	KA8-IMU	TONY	K8-RZP	JOHN	WB8-ZUR	JOHN
N8-DMK	RUSS	WD8-INK	KEN	K8-SCI	RICK	KA8-ZVK	MERILEE
N8-DPZ	BOB	WD8-INO	STEVE	WD8-SDP	LIN	KA8-ZVU	TERRY
K8-DTS	BOB	W8-IO	BOB	KA8-SLX	CHRIS	KA8-ZVV	MARY
WB8-DTY	TOMMIE	WD8-IQO	MILT	WA8-SNI	CHARLIE	KA8-ZVW	GENE
KE8-DX	DICK	WD8-IRG	VAN	KA8-SNM	CHERI	KA8-ZVX	JASON
WA8-DYL	GENE	WD8-ISB	DICK	K9-SSL	MIKE	-	TINA STROH
KB8-DZ	JOE	KR0-J	JEFF	KA8-SYT	JOHN	-	TIM SULL
N8-DZO	JACK	N6-JAM	RON	NR8-T	TIM	-	PENNIE WELLS
W8-EFW	PAUL						

NORTH COAST AMATEUR RADIO CLUB - 1987 CALENDAR YEAR

OFFICERS

President - - -	Tim Hitesman	NR8T	871-3055
V. President -	Bob Mills	K8TTZ	431-9492
Treasurer - - -	Jim Nestor	N8GJR	1-355-8697
Secretary - - -	Dave Hoffmann	KA8ZRG	835-8275

POSITIONS

ARRL Club Liaison-	Rick	K8SCI	779-8999
ARRL VE Liaison -	Dan	KB8A	267-5083
Awards - - - - -	Fred	WB8UDA	U.L.
Contest - - - - -	Dave	KB8TT	942-5030
Editor - - - - -	Rick	K8SCI	779-8999
Education - - - -	Bob	W8IO	734-0570
Event Compiler - -	Ed	KA8ZRH	651-8191
Field Day - - - -	Paul	N8HOB	884-8398
Finance - - - - -	Mike	K9SSL	225-1744
Membership - - - -	Pauline	KA8FOE	779-8999
NCARES - - - - -	Rick	K8SCI	779-8999
Net Coordinator -	Steve	N8GNJ	1-365-2793
Programs - - - - -			
Public Relations -	Steve	NO8M	777-1177
Refreshments - - -	Pauline	KA8FOE	779-8999
Sunshine - - - - -	Pauline	KA8FOE	779-8999
Technical - - - - -	Jeff	KR0J	631-6087

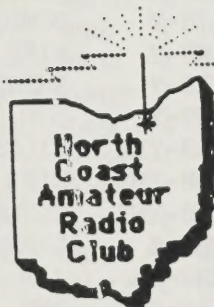
TRUSTEES

Dan - - -	N8ETQ	845-5442
Tom - - -	KD8EX	1-933-8753
Pauline -	KA8FOE	779-8999
Steve - -	N8GNJ	1-365-2793
Dick - -	WD8ISB	467-7733
Steve - -	WD8INO	741-2547
Steve - -	NO8M	777-1177
Ray - - -	WD8MHL	671-0317
Rick - -	K8SCI	779-8999

VOLUNTEER EXAMINERS

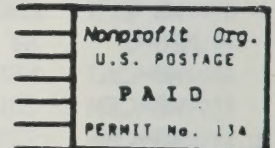
Dan - - -	KB8A	267-5083
Pete - -	WLBKZ	951-9360
Dick - -	KD8EQ	235-2323
Heinz - -	KC8F	734-6890
Bob - - -	W8IO	734-0570
Dick - -	WD8ISB	467-7733
Don - - -	KD8JQ	1-723-5492
Dave - -	AI8M	1-324-4574
Steve - -	NO8M	777-1177
Mike - -	K9SSL	225-1744
Tim - - -	NR8T	871-3055
Shirley -	KA8Y	562-5858

Amateur Radio Classes started February 4th. Helpers and "Elmers needed. Call Bob 734-0570



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